AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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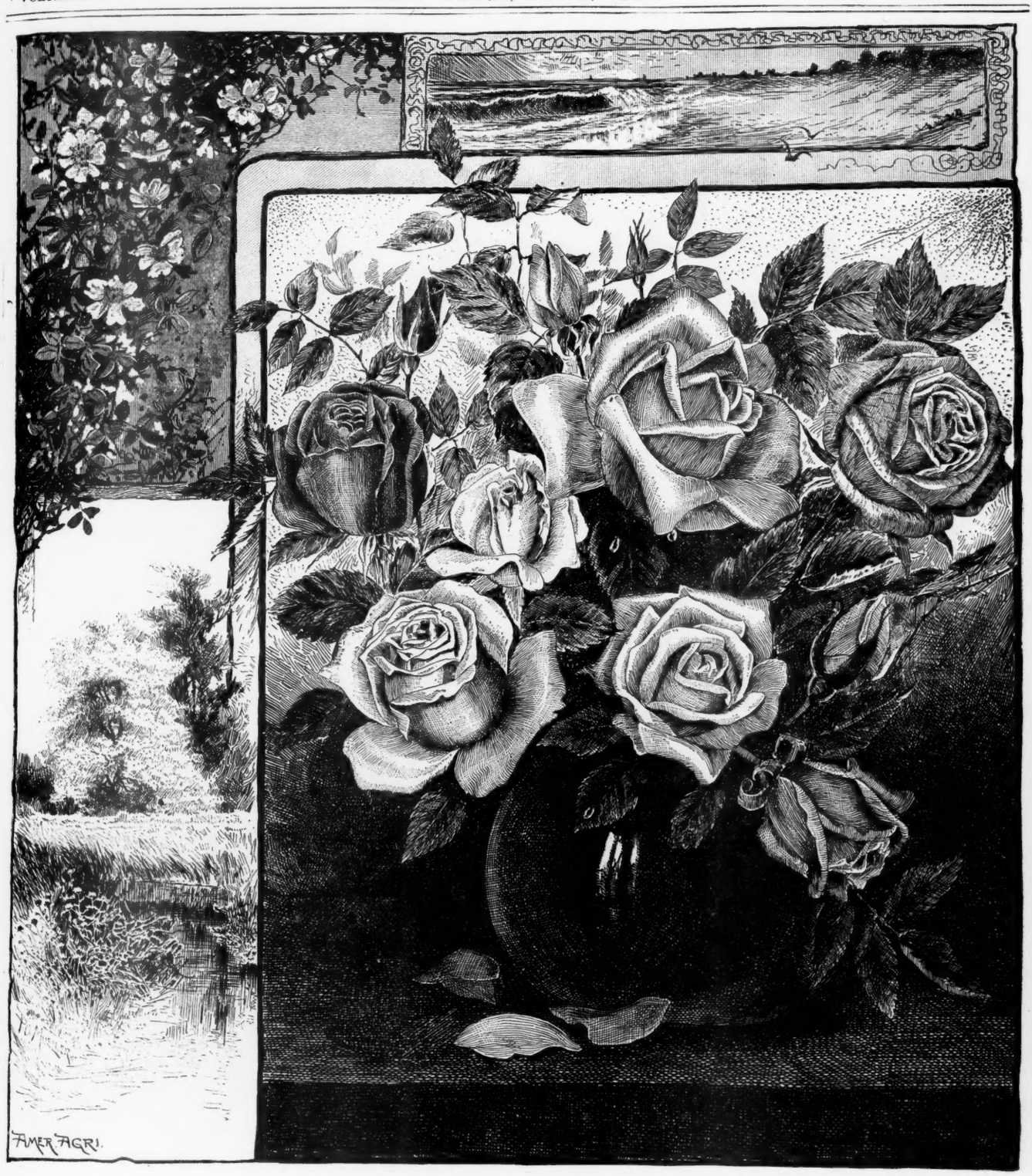

Papa Gontier. Catherine Mermet. La France. Sunset. Perle des Jardins.

"We live enraptured—thou'rt here, O June,—All fragrant with the odor of thy roses."

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June.

Among the twelve months of the year
That come and go,
'Mid storm and glow,
June is the sweetest, drawing near
When roses blow.

Coming across the cool, green hills,
So warm, so bright!
Her step strikes light
From barren rocks, and makes gay rills
Laugh into sight.

LUCY LARCOM.

FARM ✣ AND ✣ GARDEN ✣ WORK

JUNE, 1889.

We have for many years endeavored to convince farmers that there are other grasses than Timothy deserving their attention. One great advantage in having different kinds of grasses is, that they come into flower and into condition to cut at several days or a week apart. Orchard grass, for example, may be cut, and out of the way before timothy is ready.

Supplement the Hay Crop.—This month will show the probable yield of hay. If the crop is short, it is well to sow some crop to piece out. Probably nothing is more profitable than fodder corn, especially if some fertilizer can be used to insure a quick growth. The so-called "Golden" or "German Millet" is becoming a popular crop for this purpose. It may be sown any time in July or even as late as early in August.

Indian Corn, put in as late as the first week of June, will usually make a good crop. Plant early varieties.

Thinning.—If the value of proper thinning of root crops is understood, it is seldom properly followed. Much thinning of rutabagas and other root crops may be done with a sharp hoe. Strike across the rows, pulling the hoe toward you, leaving then your plants in small clusters or bunches, a foot or so apart. Then go over the rows and thin out those bunches, leaving but one plant in a place.

Weeds.—Begin early to weed root crops—with a cultivator that can run close to the rows, much hand work may be saved. Onions and carrot seedings, if the weeds get the mastery, may as well be plowed up and re-sowed. We never saw any way of successfully weeding onions but to get down over the row on the hands and knees.

Live Stock.

It takes horses a long time to recover from the season of little work and long confinement in the stable; they need to be inured to the work of the season, gradually. Special care to make sure that the collar and all parts of the harness fit properly will prevent injury by chafing. Dust and perspiration drying together soon make the collars very uncomfortable, and they should be cleaned as often as needed.

Clover Fields should be well fenced, with secure gates to prevent cows and sheep from eating and gorging themselves with rank growing clover, which causes a condition of bloat that is often difficult to relieve, and in spite of all that may be done is sometimes fatal.

Orchard.—Keep a bearing orchard in a good growth of grass and clover. Pigs are the only animals that should be pastured in an orchard, and young pigs will make a surprising growth if thus treated.

Sheep.—Rapidly growing lambs often prove too great a drain upon their dams, which should have their feed of grain increased, to keep them from running down.

Mares, as their time approaches, should be relieved of work and given a roomy box stall with abundant bedding. When the foal is dropped, a pailful of warm oatmeal gruel will be acceptable to the mare. Do not breed from a mare that is spavined or otherwise defective.

Orchard and Fruit Garden.

As the country becomes older, fruit growing is more and more beset by insect enemies, and the most successful fruit grower is at the same time the most successful destroyer of insects. There is scarcely a month in which something may not be done to diminish the number of insects. There is no general remedy,—no one treatment successful with all insects alike.

The "Apple-worm" or Codlin Moth.—The use of poison for this insect has proved a great success, but it must be applied at the right time to be of use. The young fruit when it first "sets," soon after the blossom falls, is erect, with the "eye" or calyx end pointing upwards; as the apple increases in size, and becomes heavy, this position is generally reversed, and the stem end is uppermost. Paris green is applied with water, using some spraying implement that will diffuse the poison so generally that some will be likely to lodge in the "eye" of each young apple. The mother moth lays her egg at the calyx end of each apple, and as the young caterpillar hatched from the egg eats its way into the apple, it is quite sure to meet with some of the poison, which puts an end to its career. A tablespoonful of Paris green to a barrel of water is sufficient. Picking up and destroying fallen fruit will dispose of the insects in those apples that escaped poison.

Canker Worm.—The female being wingless can only ascend the trunk by crawling, and all preventives have for their object the placing of some obstacle in her way. In some seasons the insects leave the ground and go into the trees as early as February. The caterpillars completely destroy the foliage, the trees appearing as if a fire had been through them. It is equally destructive to the Elm. When the eggs have been laid in the trees, poisoning the foliage with Paris green has been practiced with some success.

Curculio.—There is but one remedy, which is to shake or jar the trees early in the morning, catching the insects upon a cloth spread under. This, begun as soon as the plum sets and well followed up as long as any are caught, will insure a good crop of plums.

Borers.—A band of strong paper around the trunk near the roots will keep out borers. If they are already in the trunk, probe them out.

Strawberries, if not already mulched, should have a mulch applied at once. Rye straw makes an excellent mulch, but in the absence of all else, corn-stalks laid lengthwise between the rows will keep the fruit from being soiled.

Raspberries and Blackberries.—The next year's crop will be borne upon canes that grow the present season. Select the canes that are needed, and the others, as they are only weeds, are to be treated as such and hoed up.

Grafts.—Look to those grafts that have taken, and if likely to be crowded, remove the excess. Grafts should be treated as if they were young trees. If dormant clons can be had, grafting may still be done.

Kitchen and Market Garden.

Tomatoes should not be set out until the weather becomes well settled. The old notion that they do best on poor soil is generally abandoned. In a small garden they should be supported by a trellis. In field culture it pays well to lay down brush to keep the fruit from the ground. Do not pick the earliest fruit, but save the earliest and finest found for seed.

Egg Plants require still more care. The 10th of this month is early enough in the climate of New York, and the ground should be warm and rich. When set out look out for the attacks of the Colorado potato beetles. They appear to prefer this to all other plants.

Beans.—If bush sorts are already planted, put in a few more for succession. But few pole beans, other than Limas, are as popular as they were formerly. A set of poles of red cedar costs but little, will last for years and always present a neat and uniform appearance. Prepare the hills by liberal manuring, and set the poles before planting the Lima beans, which should be pushed into the soil, eye down.

Corn.—By planting every week or ten days, using the earliest varieties for the late crops, a succession of sweet corn may be kept up until frosts.

Cabbages.—As soon as the early sorts are off prepare the ground thoroughly for celery. Sow seeds of medium late and winter cabbages early this month. If many plants are required, sow in drills that can be worked with the hand hoe. Select the richest land. To get good, stocky plants do not sow too thickly, and keep them clear of weeds.

Beets.—The thinnings of the beet rows are such excellent greens that it is our custom to sow beets expressly to be used for greens, when it is too late to sow spinach. The old Bassano is a quick-growing seed, and is best for this purpose.

Celery.—Thin out the plants in the seed-bed, where they are crowded, and prick out the plants thus removed, in rows in good soil, setting them to two or three inches apart, to grow until needed for final planting. In a dry time give the celery plants water.

Cucumbers.—Where cucumbers are grown largely for pickles, each locality has its favorite variety, obtained by careful selection, and its favorite time for planting. They are usually planted in well-manured hills, four or five feet apart, and eight or ten seeds to the hill, so that the plants may be thinned to three or four in the hill. Keep the ground cultivated as long as the vines will allow working among them. In contracting for delivery at the factory, specify the size to be delivered in inches, and not "as large as the middle finger," or "the size of the thumb."

Lettuce.—Sow for succession. Rich land, with the plants thinned to eight or ten inches in the row, with clean cultivation, are the conditions for raising good lettuce.

Musk- and Watermelons.—A few plants for early fruits may be started on sods or in pots in the hot-bed, but the main crop is planted in manured hills or rows as advised, for cucumbers. In the Southern States the hills are made twelve by six feet apart. The melon crops, as well as others, suffer severely at the South from the ravages of cut-worms. Dr. Oemler of Georgia clears his field of cut-worms by laying poisoned cabbage or turnip leaves fifteen or twenty feet apart all over the field. The leaves are first dipped in a well-stirred mixture of a tablespoonful of Paris green to the bucket of water, or are first dipped in water and one side freely dusted with a mixture of one part of Paris green to twenty of flour, and laid on the ground with the poisoned side down.

Squashes.—Plant winter sorts in manured hills ten by twenty feet apart, using plenty of seed, leaving two plants to grow. A fight with weeds and insects must follow to insure a good crop.

Flower Garden and Lawn.

Lawns.—The direction to mow the lawn each week is good, provided the grass needs it. The frequency of cutting must depend upon the rapidity of the growth, and that, of course, will be determined by the weather. Most of the annual weeds will disappear with frequent cutting. Crab grass or Finger grass is one of the worst of lawn weeds, but it is an annual, and if prevented from ripening its seed, by frequent cutting, will disappear in a few years. Dandelions, docks and most shrubs are perennial and form strong roots, which may be pulled up when the ground is moist, or cut off well below the surface. A handful of salt upon the root that remains is thought by many useful to prevent the root from starting anew.

Edgings of grass along beds and borders should be frequently cut, and if the turf sends its roots into the border, pull them up before they become established.

Bulbs and Tubers.—Gladiolus bulbs may be planted for succession. Tuberose bulbs that have been started in the window or a frame may be set out in rich soil.

Greenhouse and Window Plants.

Plants left in the greenhouse must have proper shading. In hot weather keep a damp atmosphere by freely wetting the floor, etc. Insects will abound in warm weather, and need fumigating and other preventives. Look frequently to plants that are set out of doors. Do not allow them to suffer for want of water. Turn occasionally, to keep from growing out of shape. Shade the pots from direct sun. Look out for insects. Control the growth by pinching or the use of the knife.

BEAUTIFUL ROSES, AND HOW TO GROW THEM.

C. L. ALLEN.

In making a selection of roses for the amateur gardener who has but little room at his disposal and yet desires that his collection shall present the best possible appearance at all times, the "ever-blooming" kinds are to be preferred. There is not a better rose for June than *Gen. Jacqueminot*, or *John Hopper*, and in a large place their absence would be unpardonable; their presence in a small collection would be almost equally so, because constant bloom is desired, which this class cannot furnish. The following varieties embrace every desired color, and will, with proper management, give continuous bloom from June until November. That is, although not each variety will at all times be in flower, from the collection roses can be cut at all times during summer.

Agrippina: This is a constant bloomer, flowers dazzling crimson scarlet, a beautiful autumn rose, very beautiful buds; the best of its class.

Bon Silene: A splendid tea rose and generous bloomer; color a deep carmine red, most desirable in the bud, which is large and of good shape. Like most of the teas, it is nearly always in flower.

**Catherine Mermet:* The finest of all the tea roses; a shy bloomer in the garden, but its many good qualities more than compensate for the deficit; flesh color with the same luster so conspicuous with La France; very beautiful in the bud; when the flowers open they are deliciously fragrant.

Hermosa: An old but valuable rose, one that can always be depended on for bloom. Color, a clear bright rose; it delights in the cool, dewy nights of October, at which time the stocky bushes are a mass of bloom.

**La France:* A hybrid tea, is one of the best pink roses, it is classed hardy, but is not with us. Flowers silvery-rose, changing to pink, very large, full, globular; a most constant bloomer and the sweetest of all roses.

Marie Guillot: A tea, but little fragrant; white, faintly tinged with yellow, large, full and of splendid form; one of the best bedding roses.

**Papa Gontier:* This is one of the recent novelties and justly popular. It produces long pointed buds of a glowing carmine crimson color, which, though not very double, are of great substance. We cannot speak of its productiveness as a bedder, as it has been but little tried; its brilliant color makes it desirable in our collection.

**Perle des Jardins:* The most beautiful and fragrant tea rose in cultivation, and a most profuse bloomer in the open ground. Its color is a rich shade of yellow; of large size and perfect form; a healthy and free grower.

Safrano: One of the oldest and best of the teas; saffron and apricot yellow, large semi-double, exceedingly beautiful in the bud and a most profuse bloomer in the open ground.

Souvenir d'un Ami: An old tea of great merit; Salmon rose, very large, full and very fragrant; blooms freely in the open ground.

Souvenir de la Malmaison: This is a grand rose for autumn flowering, and does well in the hottest weather, but September brings it out in the greatest perfection. Its rich light flesh colored flowers are of immense size, freely produced, and deliciously fragrant.

**Sunset:* A sport from *Perle des Jardins*, retaining all the good qualities of the parent. The flowers are large, of fine, full form, very double and fragrant. The color is a remarkable shade of rich golden amber, tinged and shaded with dark ruddy copper.

A congenial soil is the first requisite for success with roses, and this is not always at hand. That in which the rose delights more than in any other is a deep, rich, heavy loam, moderately moist. The rose is a gross feeder and will at all times resent neglect. Poor soil will not yield good roses. No, not even poor ones. A liberal supply of plant food is absolutely necessary, in order to secure roses. The amount of flowers is proportionate to the growth of the plant; they will appear just as fast as the wood is produced that bears them, and the wood is produced according to the supply of plant food furnished. That is about all the secret there is in growing roses.

The best plant food for the rose is a compost of well-rotted turf and cow manure in equal parts; this is to be applied at any and all times; it makes but little difference how or when, so long as the plant has always a supply on hand ready for use. Manures should never be applied to rose beds until thoroughly decomposed, then a surfeit is impossible. The best plan is, after the plants have been set in a well-prepared bed, to mulch the surface, say to the depth of two inches. If the soil is naturally cold and heavy, horse dung will be better; if light and dry, cow dung is decidedly preferable. Whatever the nature of the ground may be it should always be kept moist and warm, at the same time never sodden; too much wet is as fatal as drought; either will consume. The best situation for the rose is an open and airy one; in such, with a liberal supply of manure, roses can be had the entire summer, and it is folly to think of getting a crop in any other manner. In case of drought, liquid manure can be applied with excellent results. Growth must be constantly kept up; the more rapid, the greater will be the number of flowers, and the quality will be proportionate. As a rule young plants are to be preferred, and those that have never had a check from the time the cuttings were put into the propagating bench give the best results. Old and half-starved plants we would not plant under any circumstances, and it is by far the best economy to set out new plants every spring, or at least as often as once in two years.

To keep roses over winter, take them up after a good hard frost, and heel them in, in some protected place in the garden; lay them close together at an angle of about forty-five degrees. Pack the earth closely around the roots, then cover the whole with newly-fallen leaves to the depth of six inches; over the leaves lay some brush or throw over them sufficient earth to keep the leaves from being scattered by the wind. The following spring gradually uncover upon the approach of warm weather, and replant as soon as the soil is in proper condition.

*The varieties marked with an asterisk are illustrated in our frontispiece.

WHAT ABOUT THE SILO?

JOHN GOULD, OHIO.

That there should be some advance made in silo knowledge, is not surprising, when some fifteen thousand wide-awake farmers in this country are each constituting himself as the director of an experiment station, to find out for himself how much new can be chanced upon and yet score success. The wooden silo has proved its claims as a superior receptacle for the preservation of silage, as it is not only less costly, but a better non-conductor of heat, and therefore more easily made frost proof; all of which means a more uniform temperature for the silage, and the nearer approach to the ideal sweet silage. There is some question about the walls of the wooden silo, whether to have them two boards thick, with tarred paper between, or of one thickness of matched lumber thoroughly painted with hot asphaltum. The one can be constructed with cheap, cull pine lumber, the other must have good, well-matched flooring, or an air-tight wall cannot be secured. Some hold that it is yet better to lath and plaster the interior of the silo to make it durable. Others insist that they get even a better wall by painting with hot gas tar, in which some resin is melted, or the use of the hard finish asphaltum paints.

It is settled that perfect development of the corn plant is essential to the making of good silage. Their planting and the formation of ears are, therefore, insisted upon, as is also allowing the corn to stand until the kernels have begun to enter the glazed condition before cutting for the silo. This fully developed corn, charged with plant juices, on the verge of maturity when put in the silo, does not undergo the extreme ferment incident to corn fodder less mature, and only develops lactic acid in a mild degree. The other, with its juices less charged with starch and sugar juices, passes in the silo into a more advanced stage of ferment, that often shows traces of acetic acid. It is now shown that corn had best be allowed to stand uncut until wanted, and then put into the silo without the usual two days' wilting. The wilting is only to reduce weight, but with more mature fodder, this water means food value, and wilting fodder involves increased cost of cutting, as it requires more power, is not cut as perfectly and it cannot be shown to be in any way better or even as good silage, as unwilted and more mature fodder.

With fodder of proper maturity the work of silo filling can be "rushed" along, and the necessity of allowing each day's filling to heat to 125° is obviated. When the silo is full it is allowed to stand uncovered for four or even five days to heat and throw out the air, when it is covered and sweet silage can be confidently expected. Where there are two pits, one may be filled, then the other. The first will have settled, when it can be again filled to the top, and attention then can be paid to No. 2.

It was demonstrated last year that any amount of rain upon silage fodder before going into the pits will not injure it or cause

any increase of acidity. Last fall thousands of loads of fodder dripping with rain, went into the pits but the silage showed no evil effects from it, nor did a frost near the close of silo filling work any noticeable injury to the silage. It was also found that tramping is not to be encouraged until after twenty-four hours, when the silage has begun to wilt. Then it is only of benefit along the walls to assist in making it settle. Many cases of silage spoiling along the walls result from tramping when fresh cut, as it expels the air to an extent which prevents it from taking on heat and wilting along the walls as fast as in the center. Instead of keeping the silo about level when filling, it is better to keep it the highest along the walls, and thus get an even distribution of the grain without the necessity of keeping a man in the pits all the time.

A cover to the silo, or weights, are wholly unnecessary. The silos in this region that had no covers of any sort did not show more surface waste of silage than those covered with paper, boards and sawdust. Only two or three inches of silage molded where no surface protection was used. The two or three inches of white mold made an air-tight cover that offered all the protection needed. The silos covered with a foot of dry straw, well tread down, showed the least loss of any. Those who covered closely and weighted report the greatest loss. There is no more necessity of weighting a silo than of putting two hundred pounds per square foot on a potato heap.

INDIAN CORN, OR MAIZE.

DR. GEORGE THURBER.

This is the great grain crop of America. It is with the exception of grass the greatest crop of our agriculture, and lies at the foundation of successful farming. If one's produce is to be sold as milk, butter, eggs or meat, he starts with a crop of corn. No one plant serves so many uses, whether as the plant itself or as the ripened grain. It is the one great gift to this country, and every farmer, as he plants his corn should do so with a grateful heart, and a resolution that the best return he can make for this noble gift is to preserve it from deterioration and transmit it to coming generations in an improved form.

Corn is one of the most variable of plants, and is more readily affected by its surroundings, by climate, soil, etc., than any other cultivated plant. Like most other cultivated grains it is not known in the wild or native state. It was grown by the aborigines from near the present Canada border to far south of the equator, and its occurrence in the tombs of the mound builders and those of the Peruvian Incas show that it was in cultivation long before the discovery of this country by Columbus. There have been attempts to give a Chinese or other Asiatic origin to corn, but a rigid examination of the evidence fails to show that it was known anywhere in the Old World previous to the discovery of the New. There is a variety called "Kansas Cow Corn" or "Oregon Corn" in which each kernel is enveloped in a separate husk, instead of the usual husk surrounding the whole ear. It has been claimed that this was the primitive plant, but no one has ever seen it growing wild.

The first effect of removing a variety from a warm to a cooler situation is upon the stature of the plant, there being variations in the stalk from eighteen inches to eighteen feet in height, and in the season from three to nine months in which to perfect the seed. This inherent tendency to variation and to adjust itself to new conditions allows the farmer to provide himself with a kind of corn best suited to not only his district but to the soil of his particular farm, and many growers have each a variety which he would not exchange for any other.

Corn varies in two ways: by this natural tendency of the plant and by fertilizing one kind by the pollen of another, and thus combining in one crop the dissimilar qualities of two sorts. Most of the desirable varieties are obtained by selecting seed from those stalks which show desirable qualities. Seed corn should be selected and marked long before it is ripe, while the plant shows its habit of growth, time of maturity, etc. The crossing of two varieties is seldom practiced; indeed, the farmer is more interested in preventing a cross than in making one. Such varieties, made by artificial crossing, are not very permanent. The "King Philip" corn was produced in this way, and for several years was highly esteemed, until one season, when those who planted it found they had a crop of two distinct sorts. The two varieties which made the "King Philip" had separated, and a crop of each was the result.

As an article of human consumption corn is the chief bread-food of many tropical and semi-tropical countries. It is to the Mexican what rice is to the Chinaman. The exclusive use of corn impairs the digestion, which leads to the excessive use of red pepper (*Chile colorado*) at every meal.

The varieties of corn are innumerable, but these are grouped in races of several varieties in common. Thus there are the "dent" corns, in which each kind has a more or less well-marked depression or dent in the outer end. Sweet corn is a well-marked race, in which there are many varieties differing in time of maturity, size of ears, etc., but all agreeing in the lack of starch in the kernel. The sugar, glucose, etc., which in ordinary corn are transformed into starch, in these remain unchanged when the kernels ripen, and they are consequently very sweet and sugary. Roasted, or parched corn, ground and mixed with sugar and spices, forms the "pinole" of the Mexicans. Stirred in water to form a sort of gruel, it is a pleasant and nutritious food much used by Mexicans and travelers. "Pinole" is served as a ration in the Mexican army.

Pop-corn is another distinct race, of which the varieties are many, and very unlike in size and general appearance. When gradually heated the oil in the kernels becomes converted into gas, which by its explosion produces the phenomenon called "popping." In the most perfect examples the grain is completely reversed, the starch cooked to a beautiful whiteness, expanded to many times its original size, and is tender, crisp and palatable. By the aid of sirups cooked to the candy-point, the confectioners make the popped corn into balls which are very popular with children.

AN INSTRUCTIVE EXPERIMENT WITH POTATOES.

IRVING HALE, FIRST LIEUT. ENGINEERS, U. S. A.

An experiment was made last year in the post garden at Willet's Point, on Long Island, with a view to getting an approximate idea of the increased yield produced by potato fertilizers, and the relative value of different kinds and methods of using them. The experiment was on rather a small scale, and perhaps shows nothing not already known, but the results may be of interest to some, and may give a more definite idea of the economy, expressed in dollars and cents, resulting from the use of fertilizers. The ground subjected to test was a patch of two acres, of quite uniform quality, which had been put in potatoes the year before, and had previously been uncultivated and covered with turf. It was divided into four plats of half an acre each. The whole area was given a moderate coat of stable manure and the four plats were fertilized and planted as stated in table, each plat having the same number of rows and, as nearly as practicable, the same amount of fertilizer and seed.

The fertilizers used were artificial preparations of bone-dust, blood, etc., and the two kinds gave about equal results. Mixing the fertilizer with leaf mold from woods, though it is recommended by some as increasing the yield materially, seemed to produce no appreciable effect. It may, however, lessen the danger of injury to the seed from contact with the fertilizer itself.

1st	No fertilizer	Seed, 7½ bush.	Yield, 75 bush.	
2d	125 pounds Mapes fertilizer	" 7¾ "	" 91 "	
3d	125 pounds Mapes fertilizer mixed with mold in proportion 1 to 3	" 7 "	" 91 "	
Average yield per acre, with fertilizer, 182 bushels at 70c				$127.40
" " " " without " 150 " " 70c				105.00
Gain 32				$22.40
Cost of fertilizer per acre, 250 pounds at $45 per ton				5.60
Net gain per acre				$16.80

Probably a more liberal use of fertilizer would have given still more favorable results; but there would be a point beyond which any further increase in fertilizer would cost more than it would gain.

A valuable experiment, and one well worth trying by any one interested in the matter, would be to fertilize a number of similar and adjacent sections of ground with gradually increasing amounts of fertilizer (say 200 pounds, 300 pounds, etc., to the acre), and determine which gave the maximum economy—i. e., the greatest net gain after deducting the cost of fertilizer from the value of the crop.

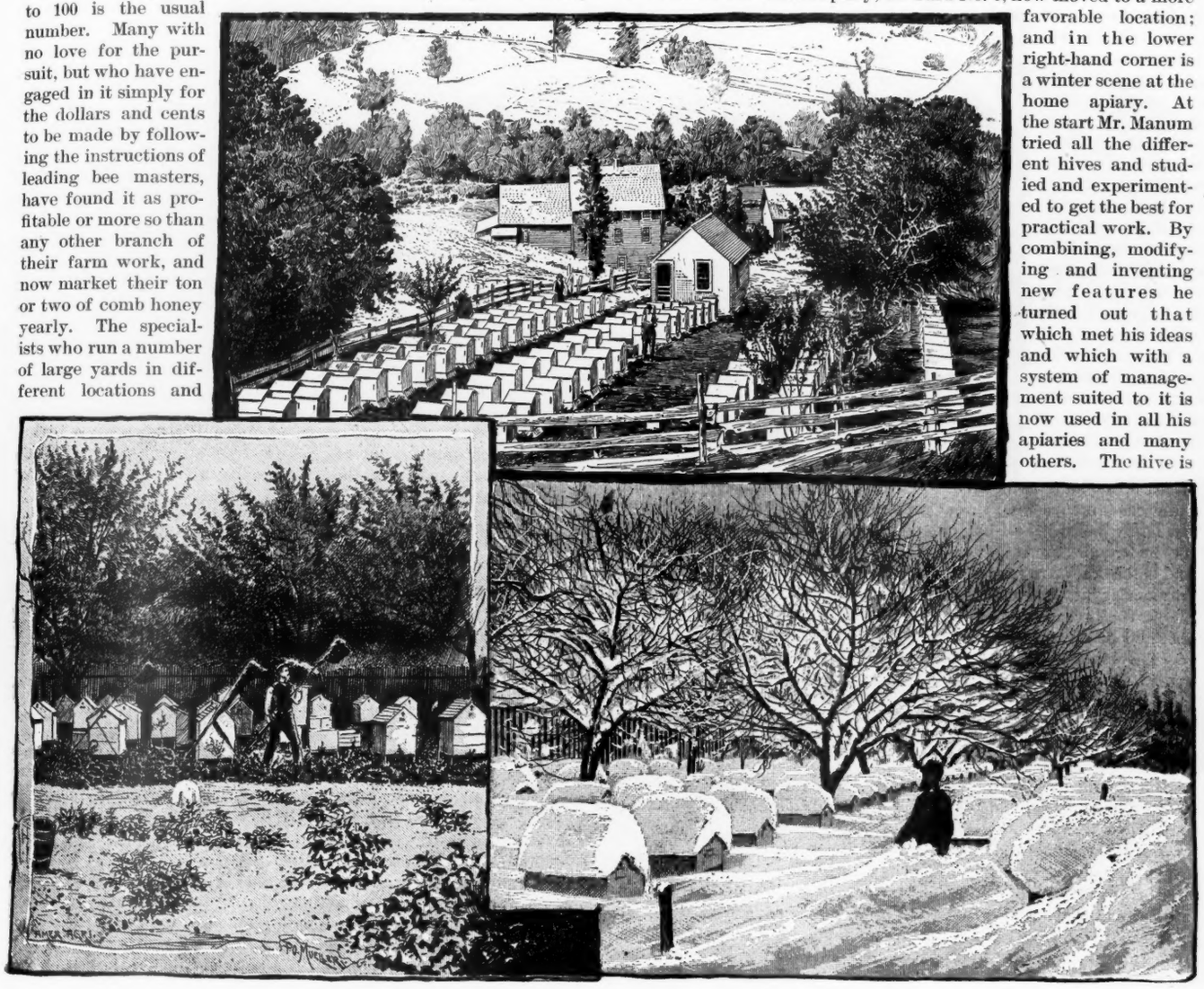
Crops in Orchards.—For a young orchard there is no safer crop than Indian corn, which, of course, should be manured and well-tilled. Orchards in bearing should be seeded with clover and orchard grass, upon which young pigs will make a satisfactory growth.

An Effective Weeder.—A steel rake, with long and sharp teeth, is one of the most effective of weeding implements, and if used "early and often" will keep land clean, with little labor.

IMPROVED METHODS IN HONEY PRODUCTION.

SAMUEL CUSHMAN.

Addison County, Vermont, celebrated for its pure-bred Merino sheep and horses, also stands high as a honey producing region. The heavy clay soil favors an abundant growth of white clover, which usually yields large quantities of the finest honey. Basswood trees also abound. The surplus honey yield being of short duration and very heavy, allows quick work by the bees, which insures delicate white comb and, with good management, completely filled boxes. This, with its fine quality, gives Addison comb honey its justly-deserved reputation. Numerous farmers and a few specialists scattered about the county keep bees. In some cases 200 colonies are kept in one yard with good results, while from forty to 100 is the usual number. Many with no love for the pursuit, but who have engaged in it simply for the dollars and cents to be made by following the instructions of leading bee masters, have found it as profitable or more so than any other branch of their farm work, and now market their ton or two of comb honey yearly. The specialists who run a number of large yards in different locations and make it their principal business, have also been successful in securing from ten to twenty tons of honey in a single good season.



VIEWS OF A NEW ENGLAND APIARY.

The most extensive apiarist in this section and probably the one having the largest number of colonies in New England is A. E. Manum. He commenced in 1870 with two colonies and, although like other beekeepers he soon found that a good season was usually followed by a poor one, his success led him to extend the business, and in the spring of 1885 he had in five different yards 470 colonies. That season was an unusual one, and he obtained from them nineteen tons of comb honey and three tons of extracted honey, and an increase in bees, making 850 colonies in the fall. This large crop was nearly all gathered in twelve days, and one of the best colonies on scales at Yard No. 2, while working on basswood, gathered in one day thirty-three pounds and in four days 124 pounds. The largest yield from one hive was 228 pounds of comb honey. His greatest yield in 1883 was 312 pounds of comb honey from the bees in one hive. As an offset to this and the previous good years, each season since 1885 has been a poor one, and his bees have not paid expenses. With a few exceptions in favored localities, beekeepers everywhere have fared the same, although three such poor seasons in succession are unparalleled in the history of the industry in this country. Mr. Manum's out-apiaries are from two to sixteen miles from the home yard, and the accompanying engravings present an idea of their arrangement and surroundings. The long rows of symmetrical and neatly-painted hives covering a hillside or appearing from among the trees of an orchard, arrest attention and excite interest. In the lower left-hand corner is a view in the home apiary at swarming time, showing three swarms clustered on catchers, and Mr. Manum about to carry one to its new hive. The upper picture is a view of the Sincon apiary, on Yard No. 6, now moved to a more favorable location; and in the lower right-hand corner is a winter scene at the home apiary. At the start Mr. Manum tried all the different hives and studied and experimented to get the best for practical work. By combining, modifying and inventing new features he turned out that which met his ideas and which with a system of management suited to it is now used in all his apiaries and many others. The hive is double-walled and consists of a stand, inner hive or brood chamber and an outer case (see Figs. 2 and 3). The entrance is through the stand underneath the brood chamber and cannot be clogged by snow, is protected from rain, and by means of a slide can be graduated from two inches long by three-eighths of an inch wide in winter to fourteen inches long by two inches wide—the full summer width when the slide is removed. The outer case is movable and is in three separate sections. The roof is of clapboards. In each gable is a two-inch auger hole for ventilation. This is protected by a wire cloth funnel projecting outward, which allows the bees to leave one at a time, but not to enter. This is an important proviso when bees are hastily shut in or when surplus honey is removed. The three-inch space between the walls is filled with chaff or sawdust, which is allowed to remain winter and summer. When damp, it can be readily replaced. Having so many loose parts, the hive can be moved without heavy lifting, and when properly packed is suffi-

cient protection from New England winters. The hive stands rest on two lengths of joist to keep them off the ground, and are set perfectly level. Hives once located are not afterward moved unless carried away from the yard.

The brood chamber is covered by a board, when the sections for honey are not in place, and contains twelve hanging frames twelve inches long by nine-and-one-half inches deep. The surplus arrangement consists of cases, at one end of which are a follower and wood screw by which the sections are tightly clamped together. Each section is supplied with a full sheet of foundation and between each row are placed thin wood separators to insure perfect combs. Figure 4 shows a Crane clamp of seven two-pound sections, with the separators. Figure 5 illustrates the Bristol clamp of sixteen one-pound sections, one of which is raised and shows the sheet of foundation in place. Mr. Manum was probably the first to make a white poplar dovetailed section, which is not so much used. Previous to

FIG. 2.
BRISTOL HIVE.

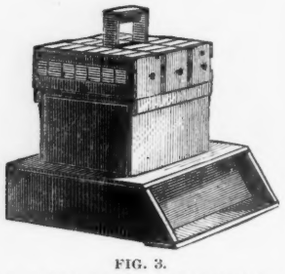


FIG. 3.
BRISTOL STAND, BROOD-CHAMBER AND THREE CRANE CLAMPS.

this they were of pine, and made to nail. This section, put together with glue, is not only the strongest but the neatest section in use. Two of the Bristol clamps cover the brood chamber and can be tiered up as high as desired. Figure 3 shows the hive with the outer case removed and three Crane clamps in position. Mr. Manum has lately discarded all but one-pound sections. When filled with finished combs, the cases are disconnected from the brood chamber, and before they are removed to the honey house the bees find their way out at the bee escape in the gable. A cord and a simple device allows the hive cover to be tipped back instead of having to lift them off bodily when opened.

The hives are five feet from each other in rows twelve feet apart. To prevent upsetting by heavy storms in winter, a large cord is thrown across the roof and fastened to a stake driven in the ground on each side. During the winter everything needed in the summer campaign is prepared ready to be quickly supplied to the different yards by the teams which are then constantly on the road. In the spring at certain intervals Mr. Manum and his assistants spend a day in each apiary giving that aid to colonies which is so important. These rounds are made more and more often until the swarming season is about to commence, when one competent person is placed in charge and is in constant attendance for six or eight weeks, or until the honey season is over. Board is usually obtained at the farm house near which the yard is located, and the help are continually employed in hiving swarms, putting on or taking off boxes and in attending to other necessary details. As experienced men are not always to be had, many knowing nothing of the business must be taught, and as they usually commence for themselves as soon as really competent, this instruction must be given again and again. After a few weeks' instruction some are able to do nicely the remainder of the season with occasional looking after. Women are also employed, and one who did not know a queen from a drone when she commenced, took entire charge of 116 colonies the second season.

At each apiary there is a building containing a honey room where clamps of honey are temporarily stored, and a work room where fixtures not in use are also housed. In each yard one hive stands on scales, of which a close watch is kept after the clover and basswood blossoms open. On the front of every hive in plain black figures is the colony's number, while inside is a record of the colony, its origin, age of queen, date of each examination that season and their condition when examined. This is written in abbreviated characters on a piece of section or smooth board and laid on the packing. The apiarist also keeps in a book a list of the colonies casting swarms, and of those requiring special attention at a certain time. The wings of all queens are clipped to prevent their going off with the swarms. When the latter attempt to leave, they are caught by an arrangement consisting of a wire cloth cage fastened to a pole. It is made to stand anywhere by two legs, which fold up when not in use. A sufficient number of these are always at hand. When a swarm issues, the queen is caught on the ground near the hive and placed in the cage of the catcher, which is stood or held in the midst of or near the flying swarm, and the bees soon settle upon it, as seen in Figure 1. They are then left, and attention is given to the others, which usually issue at about the same time. If the swarm has gone some distance, or clustered in the top of a tall tree, it will soon return, as it is without a queen. So the catcher containing their queen is stood in front of the hive from which they came, and as they return they find her and cluster upon it. To make this more certain, the entrance of the old hive is covered with a cloth. This plan differs from that of most beekeepers and enables Mr. Manum to quickly handle many swarms. In hiving, when time is more plenty, about a third of each swarm is shaken back in front of the old hive and the balance of two or three swarms, with one queen, is hived in a new hive. As this makes a powerful working colony in the new hive, abundant room in sections is immediately given.

A close watch is kept of the apiary, and more storage room is added as fast as used to advantage, and the filled clamps are removed as soon as they are completely sealed. A large crop can be cut off from communication with the brood chamber in a short time, and when free from bees is carried to the honey room and afterward carted to the central honey house. It is then scraped clean of propolis by women and girls, and after being graded is stored in the honey room to ripen. In the fall, wood sides of white poplar instead of glass are fastened to each section, and they are shipped to market in white poplar crates holding two one-pound sections. Sections full of nice white comb, those full of darker combs and those light in weight, are each crated separately and the crates are marked "Green Mountain," "Comb Honey" and "Light Weight," according to contents. A few of the very best and most perfect are selected from the first quality and go as the "Snow Flake" brand.

As most of the crop is secured as surplus and but little is gathered after its removal, that remaining below is no more than the bees need during the season. Therefore, to keep them alive until spring, each colony must in early fall have its ration of sugar syrup. This season twenty-eight barrels of the best granulated sugar were required to insure sufficient winter food. For feeders, maple syrup cans with small holes punched in their bottoms are used. Three short legs of tin raise them enough to give the bees room to get at the holes. These cans are filled with syrup and set over a hole in the cover of the hive, and are renewed until the proper amount of food is consumed.

After the honey season, instead of a constant attendant at the out-yards, frequent visits are made, as in the spring, and are continued until the bees are snug for winter. Then an occasional trip is made on a warm day when the bees can fly to see that all entrances are clear.

Mr. Manum has, at present, about 700 colonies in eight different yards. The number in each is limited to 125 in the fall. The colonies in excess of this number are either sold or carried to a new location. For this work a double and a single team are used. By the use of rocks which hold a second tier the former takes fifty colonies and the latter twenty-three colonies. Before loading, the frames are immovably fixed and a sheet of muslin is tacked over the brood chamber to give air, while in very warm weather a rim covered with wire cloth is necessary to their safety. Mr. Manum's bees are

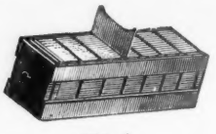


FIG. 4.
CRANE CLAMP.

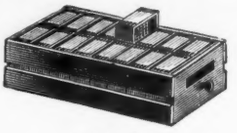


FIG. 5.
BRISTOL CLAMP.

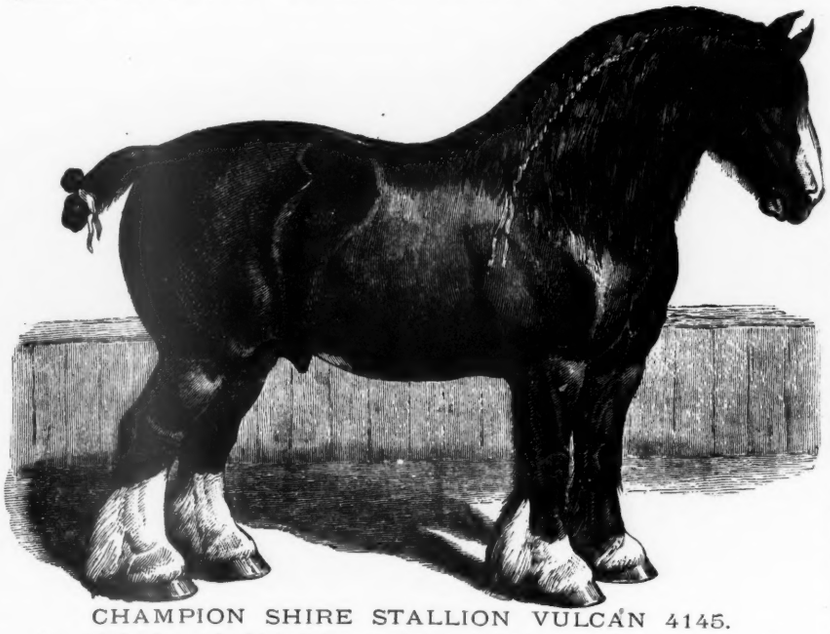
mostly Italians, although in some apiaries there is a trace of Black and Holy Land blood. He is about to test a few Carniolan queens. The working queens are reared from the best Italian colonies, which are selected out of this large number as possessing unusual excellences. I saw many fine large queens a shade darker than the average Italians, having very plump and thick-set bodies. In each yard, distributed among the regular hives, were many nucleus

colonies—the temporary quarters of surplus queens. Mr. Manum has planted honey-producing crops on a limited scale, but is not yet certain that they can be made to pay.

SHIRE HORSES IN ENGLAND AND AMERICA.

The introduction and rapid increase of English Shire horses in this country have added an important and valuable element to our stock of heavy draft horses. At the same time their success in this country and the demand which it has created for them have largely increased their interest and value in England. So great is this interest that annual exhibitions are held in Islington of Shire horses exclusively. Ever since these shows were established they have steadily grown in importance as well as in numbers. That of the present year was the most imposing exhibition of a single breed ever known, numbering 447 animals. That of 1880 comprised only 110 entries, the increase having been steady and unvarying from year to year. At the head of the recent show was Lord Ellesmere's stallion Vulcan, whose portrait is given herewith. This horse took the "Elsenham" challenge cup, value 100 guineas ($525), as the best animal in the show; the champion cup as the best stallion, and the cup for the best stallion in classes one, two and three. Lord Ellesmere's mare Blossom II, whose picture we also present, took the champion cup for the best mare or filly in the show, and also the cup for the best mare in classes seven and eight. The *Agricultural Gazette*—from whose spirited engravings our own are reproduced—says of the exhibits: "The full-grown stallions and mares were astonishingly grand, and the young colts and fillies, for their age, were marvels of rapid growth." Mr. Walter Gilbey of Elsenham Hall, the distinguished breeder and writer, has recently brought out a book on "The Old English War-Horse," showing its development into the Shire horse of to-day. The book contains much quaint and curious lore, tracing the history of heavy horses from the time of Henry II to the present. The title "Shire" is first mentioned in a statute of Henry VIII. Our author makes it very clear, both by text and engravings, that the war-horse of the sixteenth and seventeenth centuries was very nearly identical in form and size with the English Shire horse of the present. They have undoubtedly descended from heavy Flemish and German horses, the first of which were imported to England at a very early day.

There is abundant evidence that the great horses of England deteriorated after the abandonment of defensive armor had thrown them out of use for military purposes. The old black cart-horse is described by Stonehenge as having "a great fiddle-case in place of a head, feet concealed in long masses of hair depending from misshapen legs, flat sides, upright shoulders, mean and narrow hips, and very drooping quarters." But within the last few decades the progress from the old type to the present superb form has been rapid and unbroken. A large share of this is due to the efforts of the Shire Horse Society of England and its kindred organization in this country. The former has a membership of 1414. The first volume of the English Shire Horse stud book contains the pedigree of 2380 animals. The tenth volume, which was issued this year, contains the entries of 2106 stallions and 2160 mares. Of these stallions alone 700 are entered as in the hands of buyers outside of Great Britain, much the larger part being in the United States. As intimated above, this valuable breed has within the present decade attained a conspicuous place in this country. The Shire horses imported to the United States or bred here will compare favorably for quality with any in England. It was a significant remark by one of the leading agricultural papers of England, in speaking of the recent Shire-horse exhibition, that "the large number of purchases of animals for America has resulted in some of the older classes of stallions not being quite up to last year's standard." It does not need such a confession to convince any person who has seen such American Shire horses as Caractacus or Holland Major that many of the very choicest representatives of the breed are owned in this country. The American Shire Horse Association is a comparatively new society, but it already has 155 members, including some of the most eminent importers and breeders of the country. Alexander Galbraith, Janesville, Wis., is president, and Charles Burgess, Wenona, Ill., secretary. The first volume of the American stud-book contains the pedigrees of 1,900 animals, and a second volume will be issued early next year.



CHAMPION SHIRE STALLION VULCAN 4145.

No one can hesitate to believe that the interest in these horses will be permanent. They are admirably adapted alike for heavy work on the farm and for hauling in cities. For breeding pure or crossing with our native stock, they have proved very useful and valuable.

CHAMPION SHIRE MARE BLOSSOM 2D

Preventive of Mildew.—Take three pounds each of flowers of sulphur and quick-lime. Slack the lime and boil with the sulphur in six gallons of water until reduced to two gallons. Allow this to settle, then pour off the clear liquid and bottle it for use. An old iron pot will answer to boil it in. A gill of this liquid, mixed with five gallons of water, is an excellent prevention and cure for mildew upon plants—showered upon them as soon as the mildew appears.

HARVESTING AND THRESHING GRAIN.

JOHN J. NEW, INDIANA.

Nine twine-bound bundles are enough to put in a shock. Set up four, then break joints with four more and cap with one bundle. A shock thus set up will dry out evenly and will not mold. It will stand as well as a large shock, and have but a small quantity of grain exposed to bleach. Cut no grain when it is wet with dew. Wheat, rye and barley should be ripe when cut. Oats may be cut a little green, but if afterward left in the rain, they had better be riper. All grain should be threshed as soon as possible after it is dry. The flint varieties of wheat may be threshed while damper than the soft varieties. Barley and oats will not mold in bulk as readily as wheat, but no grain should be threshed wet.

Every farmer wants his threshing done as early as possible; he wants a quick job and his grain saved. If he would accomplish this he must be ready when the machine is. The requirements are, the best of fuel, plenty of hands, plenty of sacks, plenty of tools, and arrangement must be such as to have the work go on steadily and without interruption, with no rushing but with a will. When meals are ready the men must go at once, for it is important to keep on the right side of the cook. Arrange so that as many may eat together as possible, and let those eat first who are wanted first. Two persons at least should stay with the machine—one of the owners and some one interested in the job of threshing. It is always safest.

The handling of grain is the next consideration. It is best to put only one bushel in a sack. It is more easily handled; can be loaded and unloaded more rapidly; is less liable to be wasted; is much easier on the sacks and saves tying and untying.

Straw may be stacked with a view of forming a shelter for stock. Sheds are formed by placing posts twelve feet high at proper intervals for strength. On these place a strong ridge pole. The shed should be the full length of the stack; preferably in the center, though it may be put on either side or end. Let good solid poles or timbers extend from the ridge pole to the ground, four feet apart and leaning at an angle of forty-five degrees. Commence at the top, and nail on lath half way down, leaving the bottom open. Then build the stack upon the frame thus made. Such a shed is self-supporting and stock cannot waste the straw. If there is more straw than can be stacked on the shed frame, do not allow it to be thrown to one side and remain in a loose pile. Leave no loose straw around the stack. Clean all up and haul to the barn for bedding.

To owners of machines I would say: Keep the machines in good order, overhauling every day. Oil is cheaper than machinery. Castor oil and beeswax are the best materials to put on belts. Keep the cylinder on the exact divide and it will thresh clean out of the head, and avoid cutting. Allow the cylinder little end play. Always set at right angles with the direction of the wind. This gives a clean side to measure on, keeps straw and chaff out of the threshed grain and helps the straw hands. Keep the boilers clean. Never run a machine when it is empty. Never belt bind the machinery. Run it level as nearly as possible. Keep the belts from the dew and wet, and always use the best grades of lubricating oil.

THE POINTS OF A GOOD BUTTER COW.

HIRAM SMITH, WISCONSIN.

What are the fine points that make up a good creamery cow? is a question I am asked to answer. I presume a butter cow is meant, as the volume of cream does not determine the butter value. Cream separated from milk by intense refrigeration or by the centrifugal machine requires about one-third more in volume to make a pound of butter than cream raised in silo pans at a temperature of sixty-two degrees, and yet either of the other processes may produce more butter from one hundred pounds of milk than a silo pan.

A good butter cow should have a long face, wide between the eyes, the eye alert and expressive, and placed a long way below the horns. A cow with eyes near the top of the head does not know any more than a man with eyes so placed. She should have a large muzzle, a slim neck and a yellow skin, especially inside the ears; the breathing should be regular, the back and abdomen strong, the udder wide where it connects with the body, the teats squarely placed, and the tail slim. Over and above all these points, she must have the dairy form. The points at best are only indications. The dairy form is inseparably connected with a good butter cow. The desirable dairy form is always seen in the best types of Jerseys Guernseys, Ayreshires and Holsteins. The best beef form is presented in the Shorthorns, Herefords and most of the polled breeds. The intelligent dairyman, with a knowledge born of experience, desire and capacity for the business, never makes the mistake of choosing his cow with a beef form. Neither will the intelligent beef breeder choose his animal from the dairy form with her cat head and relaxed expression. Physical structure and natural adaptability embrace the possibilities, and therefore increase the probabilities of success with the butter cow.

While it is not difficult for a dairyman with a knowledge of his business to select a cow that will make ten pounds of butter a week, provided always such cow is within the drove or herd he is inspecting, cows that will make fourteen pounds of butter a week are not to be found in the droves that are driven about for sale. Such cows are seldom for sale except at breeders' prices. A novice might by chance select a cow that was making ten pounds of butter a week under the right treatment, yet if he kept her in a cold stable and gave her ice-water to drink and fed her on timothy hay and ground barley and corn meal, all of which are lacking in protein, the cow would soon run down to three-and-one-half pounds a week and stay there, or make less and less. Another man who knew his business might have selected the same cow and kept her in a warm stable, given warm water, warm ensilage made from sweet corn well matured, two or three pounds of clover hay and a plentiful supply of wheat bran or middlings, ground oats and peas, or a little oil meal or any other food containing protein in liberal proportion, and the cow would probably have increased to twelve pounds a week if her limit permitted.

Cows have their limit as sharply defined as a trotting horse. Pasture grass is the only single feed known that contains one part of protein or nitrogenous food to five pounds of starch and sugar (carbhydrates) in its dry matter, and it is therefore a good food to test an ordinary cow's limit. But just as good a ration as pasture grass can be made from the article just mentioned, and this ration will be much cheaper than pasture grass on high-priced land.

Dairy knowledge that enables a man to make selections of good cows from among poor ones, and shows him how to feed and treat them so that they will do their best, is not a commodity that can be rattled off to a novice like Widow Bedott's recipe for making potato pudding, but is the slow outcome of natural observation, experience and capacity. Such a man may be accurate in his judgment, and still be unable to make another man accurate. A butcher can judge the weight of a dozen or twenty bullocks within the fraction of a pound, but he cannot instruct a novice to do likewise, any more than the poet Whittier can tell Tupper how to write good poetry.

The theory that the young calf reveals the future cow is based on the form and on the heredity of the calf's ancestors. If the calf has the beefy form, and her ancestors were noted for their beef qualities, it is safe to say that such a calf will not make a profitable butter cow. But if the three days' calf has the marked dairy form and is descended from a long line of butter cows and sires, she can be developed into a good butter cow. The theory is based on the fundamental principle of all scientific but practical breeding that like begets like.

TOMATOES BY THE ACRE.

Tomatoes yield the best crops in heavy loam, that will not pack or bake. The plants, except for early planting, can be raised better out-of-doors, in garden beds. The ground should have a dressing broadcast of 800 bushels to the acre of good, well-rotted barn-yard or hog-pen manure, well and thoroughly plowed in and harrowed down. When the season is well settled, harrow the ground, and furrow out five feet each way; and put in plenty of fine, well-rotted manure at the crossing of the furrows, using about eight hundred bushels to the acre in the hills. Tread down well and cover with soil about three inches deep. Set the plants well down in the ground, pressing the soil well up to them. It is best to wet the roots when setting, as the soil adheres better. Keep the ground clean and loose with the cultivator and the hoe, drawing the soil or hilling them at each dressing.

Tomatoes are marketed by packing in crates holding a strick or Winchester bushel, made of two ends and one middle piece, each three-quarters of an inch thick, eight inches wide and fourteen inches long; with slats nailed on three inches wide, 22 inches long, and three-quarters of an inch thick. Good heavy masons' lath will answer for slats, leaving a space of one inch for ventilation between them. For a long distance from market they should be picked just as they begin to show a red tinge at the blossom end; but for near by they must be riper or so they will be well ripened when they arrive

in market. Care should be taken not to pack any cracked or wormy ones, as they spoil the rest and injure the sale of the whole. For Philadelphia market they are usually shipped in five-eighths stave peach baskets, covered with cloth, which are returned to the shipper.

COMBINED FARM BUILDING.

The accompanying illustrations show the perspective and ground plan of a combined stock barn, tool house, repair shop, wagon house, pig-pen and poultry house, designed by Sheldon F. Smith, York Co., Pa. The barn itself is 65 feet square. The first story is built of field bowlders laid up rough; the second story is of vertical siding with battens. The roof is shingled. The second story is entered by a pair of large doors, to which an inclined driveway leads up from the ground. It contains a space for tread power, silage cutter, hay-mows, granary, etc. The ground floor, Fig. 2, contains at A a tool-house and wagon shed, with two large double doors in front, and a broad slide door opening into the shed in the ear. Adjoining is the repair shop C, which is fitted up with work-bench and other conveniences. It has also a chimney, to which a forge may be added if desired. In the center of the main barn is the silo G, 20 by 25 feet and 20 feet deep. It is made with 2 by 10 inch studding, set sixteen inches apart from centers, and boarded inside with two thicknesses of inch boards and building paper between. The inside of the silo is plentifully smeared with hot coal tar. Outside the studs is nailed a sheeting of building paper well lapped at the edges, and then a layer of inch boards. The floor of the silo is sunk eighteen inches below the ground floor line. On three sides of the silo at D D are stalls for cattle, twenty-two in all, and at the angles two loose boxes E E for incoming cows. A feed passage F, five feet wide, extends all around between the silo and the stalls. In the corner

FIG. 1. PERSPECTIVE VIEW OF COMBINATION BARN.

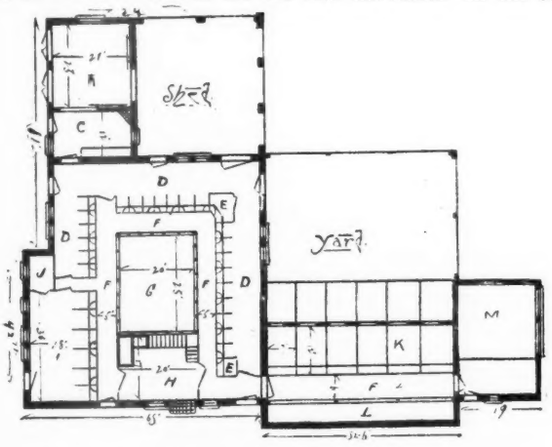


FIG. 2. GROUND PLAN.

marked I are six stalls for horses, and at J is a harness closet. At H is a spacious room for cooking and mixing food. The barn has a chimney, and, if desired, a boiler may be added for cooking food, heating water and other purposes.

Adjoining the further corner of the barn are the piggery K and corn-crib L. The former is divided into six double compartments, each one of which contains a feeding room and a sleeping apartment. The whole is separated from the corn-crib by a walk F, nine feet wide, at the extremities of which are doors leading respectively to the barn and the poultry house. The piggery is well lighted by dormer windows in front, and may be made to open into the yard in the rear.

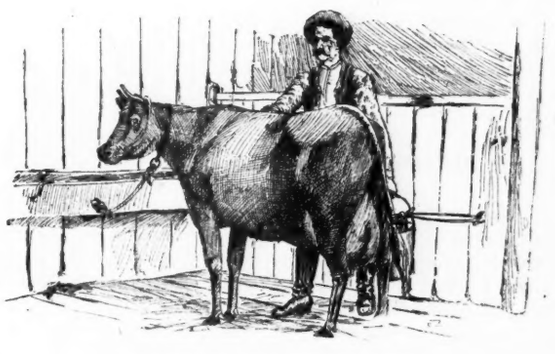
Last of all comes the poultry house, 19 by 32 feet. The front portion is entirely cut off from the rear by a screen of wire netting, which keeps the poultry in the rear part M. Windows of hot-bed sash cover the entire length of the roof in that portion of the house.

GROWING CUCUMBERS ON TRELLISES.

Bore three or four holes in the bottoms of some old barrels for drainage; fill each half full of well rotted manure well trodden down. Cover this with six inches of garden or other loamy soil, mixed and well worked with about one-third its bulk of fine well-rotted manure. Set the barrels half their length in the ground beside a trellis, fence or shed; plant melons or cucumbers in the soil four or five inches apart and cover with gauze or mosquito netting to protect the plants from insects. As they grow up train them where they are wanted and they will form a screen both useful and ornamental, as the vines will be out of the way and bear a good crop. Keep them well watered and the soil loose and clear of weeds. Make a trellis of four sticks about an inch in diameter and seven feet long, nailing them to the inside of good, stout barrel hoops nine or ten inches apart. Thrust the lower ends of the sticks in the barrel to keep the trellis in place. As the vines grow train them up and around it. On a small space such trellises are quite ornamental.

TO HOLD A COW'S TAIL.

L. S. Longcor, of Boone Co., Ill., furnishes us a description of the device illustrated herewith, and designed to protect the milker from the annoyance of constant switching of the cow's tail. A



MAKING MILKING COMFORTABLE.

piece of wool-twine of proper length is slipped through a wire staple driven into the side of the stall for the purpose. To the other end of the doubled twine is tied a strip of cloth, braid, or other soft string, which is tied around the cow's tail just above the brush, care being used not to tie it so tightly as to give discomfort. Our correspondent adds that before milking he drives the flies out of the stable and shades the windows, otherwise the cow, restrained in the use of her natural weapon against them, is rendered very uneasy and irritable while being milked.

RESTORE THE PASTURE.

S. A. BABCOCK, CONNECTICUT.

It is not probable that Eastern pastures can be restored to their original productiveness, for the expense would be far greater than the land would be worth; but it is not too late, nor would the expense be too great, to improve their present condition. If a portion of the pasture be covered with young forest trees, let them grow, and leave the land alone. The time is not far distant when an acre of timber land will be among the most valuable on the farm. If much of the pasture be thickly covered with brush and briers it would not be advisable to disturb it, unless the soil is naturally fertile, and can be plowed and cultivated without the interference of too many rocks and stones. It will do but very little good to simply cut the bushes once in three or four years, or every year, after they have become firmly established, although such cuttings will check their spreading and give a more presentable appearance to the farm. But very little feed would grow where brush, briers and stones cover the ground.

Where bushes are springing up here and there over the pasture, cut and burn them, and plow out the roots. The next year, or the same if possible, re-plow and harrow well. By continuing this course for two years in succession, and doing the work in a thorough manner, there will be no more bushes to cut, and the land will be in a condition where grass can grow. The pasture with neither trees nor bushes growing, if it have a firm sod, requires no plowing. Such land never gets sward-bound, and it seldom improves by plowing and re-seeding. Occasionally give it a coating of manure, or a dressing of some good fertilizer.

But where the pasture has "run out," or produces only a scant growth of feed, and yet has sufficient depth of soil, plow up one or two acres a year, as opportunity occurs. If this plowing is done in the spring, plow again in the fall. Put no crop on it, but simply cultivate the land. Do this as often as possible, and after two years of such treatment seed down to grass, and at the same time apply a good coat of manure or of some other fertilizer. This will give the grass a good start, and help to form a more compact sod. Continue this process with all similar portions of pasture land until all has been reclaimed. The same treatment with run-down mowing land will be attended with satisfactory results. But some may ask, Why not grow some crop upon this land, while it is being cultivated? This would require fencing, and if there is no crop, the plowing and cultivating can be done when other work is not pressing. A crop would also interfere with the frequent plowing necessary to bring the land into proper condition for seeding down, and more than all would rob the soil of the plant food which the grass so much needs. Hilly land, which might wash, may be treated with a dressing of manure or ashes. The latter often gives a more compact sod and shows good effects for years.

One great benefit to be derived by this treatment of pasture land is, that when seeded down, the grass will be much sweeter and more nutritious. Cattle, horses or sheep will feed upon newly-seeded land in preference to any other, while for milch cows there is nothing better. But such lands should not be fed too closely in the fall; especially when the cattle are taken from them nightly, as is generally the case with cows. Give the grass a chance to get a start, so that the roots will be the better protected against the freezing and thawing of winter.

HAY-MAKING AND CARE OF MEADOWS.

JOHN A. RICHARDS, MICHIGAN.

In making hay, farmers are apt to become too much hurried with drawing in, so that they do not give the hay time enough to cure and sweat; hence it becomes mowburnt, musty and discolored. It has been my observation that the best way to harvest hay is to cut early, so as to secure a good green color. Let the hay lie and have plenty time to dry; use the tedder, and then rake and cock it. Loading from the windrow is a bad practice. The hay may appear dry after the hot rays of the sun have poured upon it five or six hours, but it is so only on the outside. It should be cocked up and have time to sweat before it is put in larger masses. The markets demand hay of good color, and it pays well to use extra efforts to secure such. Hay that is cut early will bring two dollars per ton more than that cut later and allowed to become yellowish.

Though hay-making is important, the care of the meadow is equally if not more so. It is best to seed with fall crops, at the time of sowing or in the ensuing spring. Do not pasture much, and if the meadow is seeded to timothy, don't pasture at all, or the meadow will soon "run out." Pasturing will cause June grass to start, and there will soon be no timothy. I know of meadows ten to twelve years old that yielded from one-and-a-half to two tons per acre last year. They were never pastured, last spring were harrowed, and where thin, new seed was sown. Every two or three years a quantity of phosphate was sown, at the rate of a few dollars' worth per acre. This enriches the land and gives a good growth of grass. If the fall is wet there will be quite a growth after cutting. In spring, where this autumn growth dried it is burnt over. This warms the ground and gets rid of the old dead grass, which would otherwise be raked up and spoil the sale of the hay. The ashes act as a fertilizer.

I have been speaking of timothy meadows. With clover a good crop of seed can often be secured as a second crop after haying. As to which is the better, clover or timothy, it depends upon the soil, etc. Timothy brings the best price—the coarser and longer the better—while clover makes the best pasture. It is better to put hay in barns or sheds than in stacks, as stacked hay is liable to become dusty. There cannot be too much care taken in raising and harvesting hay. Human beings want their food to be well prepared, and so also do the dumb beasts.

RAISING MUSK- AND WATER-MELONS.

S. B. CONOVER, NEW JERSEY.

Musk-melons require a warm, dry, sandy loam. Plow the ground thoroughly; strike out furrows six feet apart each way; put in each crossing a good, large shovelful of manure (stable manure is best); tread it well down, and cover with two or three inches of soil. Drop ten or twelve seeds, scattering them in about one foot of space and cover half an inch deep, packing the ground down with the hoe. When the second pair of leaves appear, thin out to four or five of the strongest plants. Watch closely for the striped bugs, as they will destroy the plant while it is young. As soon as they appear dust the plants with Paris green, early in the morning, while the dew is on, and repeat for several days until the danger is over. Keep down all weeds and the ground loose by the frequent use of the cultivator and hoe, at the same time hilling up slightly around the plants. When the fruit forms, cut off all imperfect or smooth-skinned melons, as they are worthless and take the strength from the perfect ones. Do not plant near squashes or pumpkins, as they will mix and spoil the flavor of the melons. For near-by or home use, they should be left on the vines until the stem shows signs of cracking from the fruit, or it will part readily. If the melons are to be kept several days pick earlier. Use care not to press nor bruise the blossom end, as it will soften and spoil the melon. A barrel is best to pack in. Lay in all around the barrel, stem end out and side down, to prevent bruising. A barrel will hold from 30 to 36 prime melons. Cover with coarse bagging drawn tightly under the top hoop and nailed.

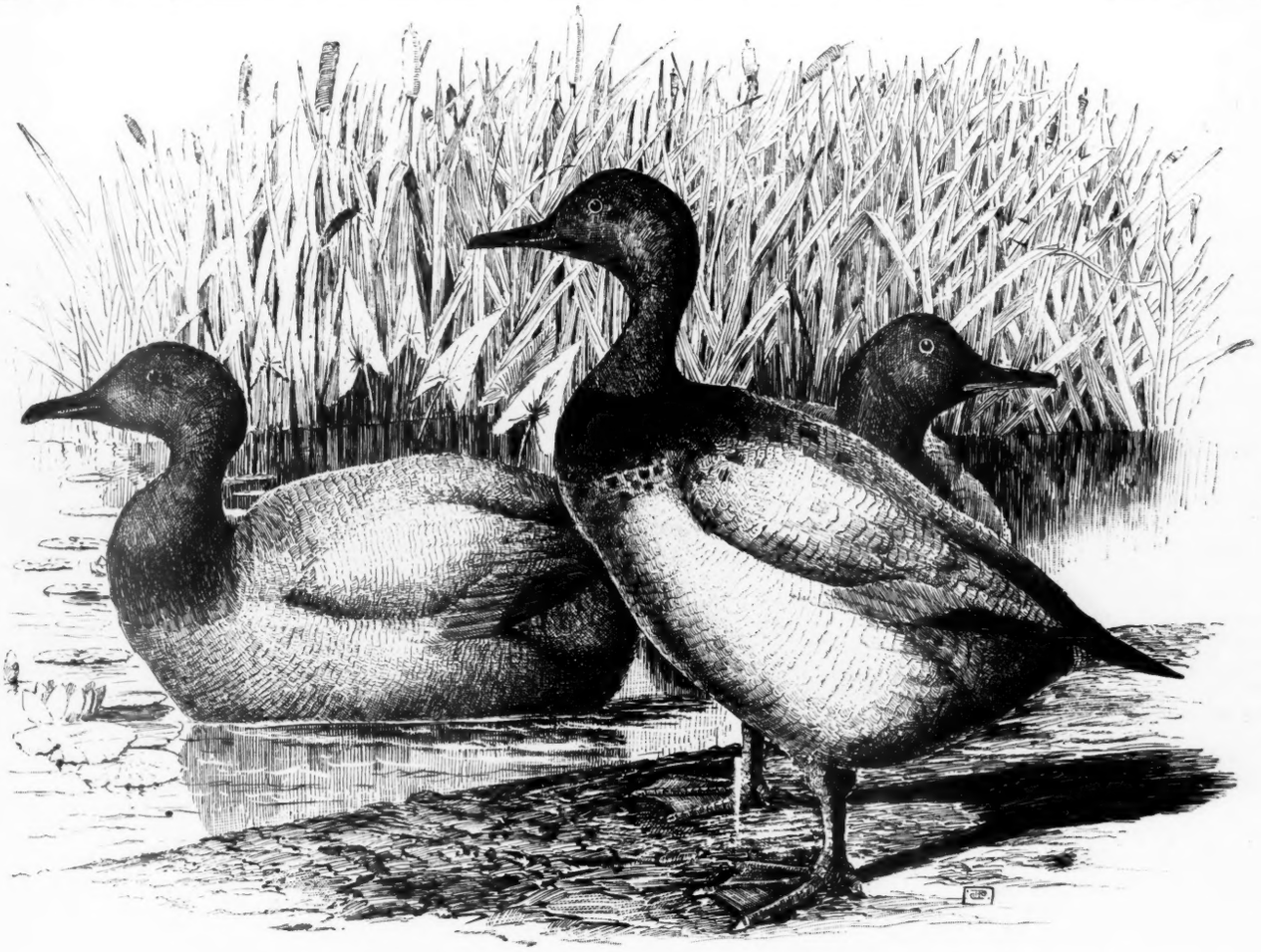
Water-melons require a warm, rather sandy loam, thoroughly plowed and harrowed. Run furrows twelve feet apart each way; dig the soil out with a hoe at the crossings about six inches deep, and two feet or more in diameter, and fill with good, strong stable manure, or a compost of muck or leaf-mold, composted with hen manure or guano. Tread well down and cover with about two inches of soil. Drop eight or ten seeds, scattering them, and cover about one inch deep, pressing the soil down on the seed with the back of the hoe. Dust with Paris green, the same as musk melons, being sure to get it well under the leaves. When they have made the second pair of leaves, thin out, leaving four or five of the strongest plants. When they begin to make runners give the ground a good dressing of fine, well-rotted manure or fertilizer, over the hill, and extending about two inches all around it, and work it well in with hoe or cultivator. Pinch or cut off all weak or imperfect ones, and thin down to from one to three on each vine, to have large ones. The large ones are the most desirable, and the only ones that are worth sending to market. It will pay best to use plenty of good, strong manure to attain that purpose. If shipped in barrels, place them stem end down and tightly together, to prevent shifting, and cover with coarse bagging.

Remedy for Plant Lice.—Tobacco water is an old and useful application for the "green fly" and all other "plant lice" or *aphides*, upon house plants or upon those in the open ground. Tobacco stems, or any other kind of tobacco, may be covered with water in a keg or other convenient vessel and allowed to steep for some

days. This will make an infusion much too strong for delicate plants, and should be diluted with water until the color of strong tea. The early, tender growth of some fruit trees is often beset by dark colored *aphides* in such numbers that the shoots look black. Young trees may have the branches bent down, and their ends immersed in tobacco water. Those that cannot be treated in this way should have the tobacco water thoroughly applied by using a syringe.

THE CANVAS BACK DUCK—ITS FOOD AND ITS FOES.

The canvas back is generally considered the prince of ducks by the epicure, and readily brings the highest price in the market. This bird was familiar to the gourmand long before it was catalogued by the naturalist. Its flavor is supposed to be that of celery, and in consequence, there has grown up the popular error that his food is "wild celery." This, however, is a misnomer, as will appear. The celery plant is a native of Great Britain, and in its wild state is rank, coarse, and unfit for food. Its development into the delicious table luxury is one of the remarkable results of careful cultivation. In portions of the United States the plant "lovage" (not an aquatic) is popularly called "wild celery." This plant, *Ligusticum officinale* is a quite distinct species from *Apium graveolens* or celery. The plant actually fed upon by the canvas back is *Vallisneria spiralis*, a well known water growth. Wilson, who first described this duck, called it *Anas Vallisneriana*, from the food which made this canvas grow so great. The plant grows in fresh water shoals from seven to nine feet below the surface of the water. The blade is grass-like and four or five inches long; the root is white and bears some resemblance to celery. It is on the root alone that the duck feeds. He dives down and tears it up. When he comes to the surface, and before his eyes are clear, the watchful widgeon puts in his fine work and secures the choice and coveted morsel, much to the disgust and indignation of his more aristocratic compeer. *Vallisneria* is found in some parts of the Hudson River, but is more abundant in waters flowing into the Chesapeake Bay. Where this plant is not found, the canvas back duck is altogether unknown. The habitat of the bird, is, according to Audubon, from the Hudson River to the mouths of the Mississippi. It is also found on the upper waters of the Western States, as well as in marshes among the Rocky Mountains. Sir John Richardson says these ducks breed in all parts of the fur country. But the chief resort of the canvas back is the Chesapeake and waters flowing therein. Its diet is, however, not confined to *Vallisneria*. Another favorite article of food is *Zostera marina*, or eel grass, a plant widely distributed in salt water, growing upon shallows and flats. On some parts of the English coast, *Zostera* is driven ashore in quantities so large that it is made into mounds to break the encroachments of the sea. It is found useful for stuffing beds, and for thatching roofs. In Italy it is utilized for the rush-like envelopes of wine and oil flasks. The canvas back, when driven to it feeds also upon snails and other mollusks, upon small fishes, lizards and upon seeds. At Egg Harbor, New Jersey, these ducks fed upon the cargo of a wrecked wheat ship. Two hundred and fifty were killed in a single day and were sold for 12½ cents each. This was in Wilson's day and is a price quite below the modern mark of three or four dollars or more a pair. On the question of food two more naturalists may be cited. Cowes, alone of the writers, calls *Vallisneria* "wild celery" and remarks that the flesh of this bird acquires from it "a peculiar flavor." Giraud says the bird "feeds chiefly on *Zostera Vallisneria*" (a confusion of the two plants), "by some improperly called wild celery, and which grows in brackish water." He adds that when this fails, "it feeds on marine plants and small shell fish." No bird is more vigorously hunted than the canvas back, and various methods are employed to decoy the inquisitive creatures and to overcome the cunning with which Nature has endowed them. They are slain by the tens of thousands, and the waters frequented by them, and the marshy shores, are blue with the smoke of the unceasing cannonade. The pot-hunter and the market-man vie with the amateur sportsman and the aristocratic club men, whose costly modes of slaughter lend a picturesque effect to the perturbed waters of the Chesapeake or the Currituck.

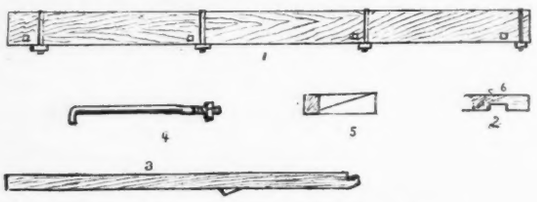


CANVAS BACK DUCKS AT HOME.

AN IMPROVED HAY-RACK.

R. G. NEWTON, DAKOTA.

A hay-rack, as commonly made, is one of the most inconvenient and cumbersome things about the farm-yard, but one made as shown herewith can easily be put on or off the wagon by one man, and when off it occupies but about a third of the space of a common rack. By removing the side-boards it may be made to serve not only as a rack, but a long, strong wagon box. The body or box is made of two pieces of pine, two inches thick, eight inches wide and sixteen feet long. One inch from the bottom, six inches from one end and eight from the other are mortises two inches square through the sides, also two more at equal distances between, of the same size. Both sides are laid out alike, and when mortises are cut change ends with one of them, so that the mortises may not come opposite each other. Four inches from each end is cut a rabbet two inches wide and half an inch deep for the end boards. These, for a three-foot-wide box, should be thirty-three inches long and two by



FIGS. 1 TO 5. DETACHED PARTS OF RACK.

eight inches, like the sides. The front end is firmly spiked in place, the lower edge being raised an inch from the lower edge of the sides. The back end should be made to slide in like the tail-board in a wagon-box, using a rod across the box to hold it in place. It is also a good idea to put one across the front end, but it must be two inches away from the outside of the end board. Eight wagon-box irons are cut the proper length—about twelve inches—and the upper end is bent over at right angles, as shown in Fig. 4. These are put on as in Fig. 1, hooking over the upper edge of the sides, passing down on the outside—to which they are fastened by rivets—and through the cross-pieces underneath. These are of pine two by four inches, and three feet eight inches long. A heavy washer is put under the bow before tightening.

The bottom should be made tight — preferably of matched boards. Fig. 3 shows one of the eight cross-pieces for supporting the side-boards. They are each two by four inches, and six feet long, the lower end cut with tenon to fit the mortises in the sides. A block, cut from a piece two inches square and eight inches long, is firmly nailed on the under side of each when in place on the box, coming up close against the inside of the box, to keep it from jarring out. Three boards, about eight inches wide and sixteen feet long, are firmly bolted and nailed on top of these, on each side, placing

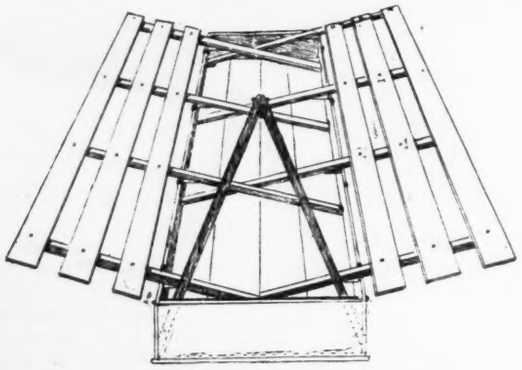


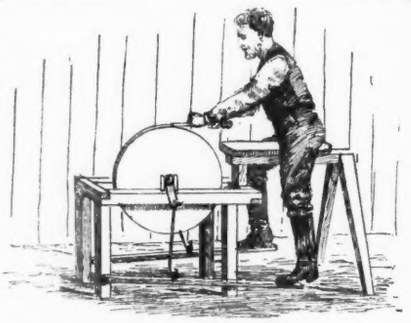
FIG. 6. THE RACK IN PLACE.

the two lower ones so that they will not rub the hind wheel. Fig. 6 is a perspective view of the box and rack complete. The upright is of two pieces two by four inches and six feet long, firmly bolted together at the top and to the front end of the box.

Thinning Fruit.—If one raises choice fruit of any kind for market, he should investigate the profit in thinning fruit. Begin soon after the fruit is set, removing half or more of the crop; and removing more at a later period will secure fine and large specimens, which with peaches and pears especially should pay well for the labor.

CONVENIENT ARRANGEMENT FOR A GRINDSTONE.

N. E. Teel, Erie Co., Pa., sends us a description of an arrangement for a grindstone, with sketches from which the accompanying illustration was drawn and engraved. The stone is hung with the journals running on friction wheels. The hand-crank is removed and its place supplied by a small crank like that already on the other side. The two cranks are set opposite each other, so that one is up when the other is down. Two treadles are hinged to the legs of the frame, and each one connected with one of the cranks by an iron pitman. A trestle is made of



SHARPENING TOOLS MADE EASY.

scantling four inches square, and adjusted to one end of the grindstone frame, as shown in the engraving. A piece of white-wood plank ten inches wide and eighteen inches long is rounded at one end and its edges beveled to form a seat. The other end is cut down to the width of five and-one-half inches. Cleats are nailed on the under side, four inches apart, to hold it on the trestle, upon which it slides freely back and forth. The forward end may be used as a rest for tools which are being ground. The two treadles, working in combination with the seat, have proved highly satisfactory, as the operator can turn the stone with greater ease, and remain much steadier than when running it with one treadle.

COMBINED POULTRY-HOUSE AND PIGGERY.

We give herewith a perspective and a sectional view of a small building designed to serve the double purpose of a poultry-house above and a piggery in the basement. It is twenty feet long, ten

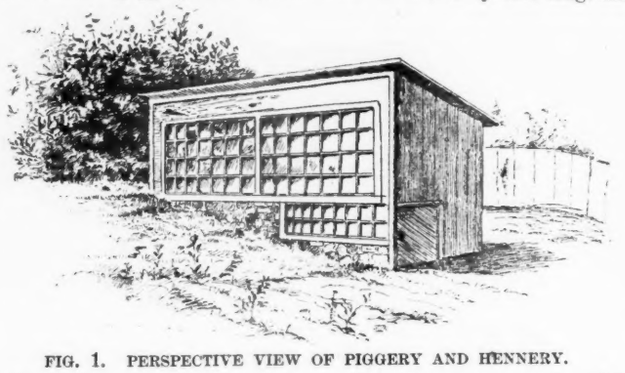


FIG. 1. PERSPECTIVE VIEW OF PIGGERY AND HENNERY.

wide and seven feet high in front above the stone foundation. The front is mainly filled with glazed sash, flooding it with light and sunshine. The basement is four feet high in the clear, and is also well lighted. Fig. 2 is a vertical section, showing the internal arrangements. At the west end is an entrance door, opening into a room four feet wide, divided from the rest of the house by a partition of pickets or wire netting, extending across the entire width of the house. In the floor is a trap-door, and a spout through which food is conveyed to the trough in the piggery below. The roosts occupy the central portion of the poultry-house, and at the right are two nest-boxes. Between the lower nest-box and the roost is a trap-door, through which the sweepings are dropped to the pig-pen, from which they are removed with other litter. The plan of the basement is plainly seen in the engraving. The perspective view is given in Fig. 1.

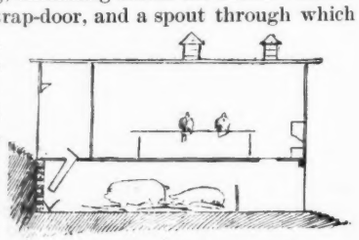


FIG. 2. VERTICAL SECTION.

Death in the Bags.—Old bags in which nitrate of soda comes, unless every bit of nitrate has been washed out of them, are dangerous things to have on the farm. A year ago the writer lost a valua-

ble Jersey cow. She was found dead in the stable, and another cow very sick and moaning with pain. The attendant recollected seeing the Jersey chewing a piece of old nitrate bag and the sick cow following her. We drenched the sick cow with two pounds of lard melted in several quarts of warm water—the more water the better, and gave her laudanum to ease the pain. She recovered. The cows had been regularly salted and yet the Jersey ate enough nitrate to kill her in two hours.

HOW TO CONSTRUCT A SILO.

GEORGE A. MARTIN.

A silo is pithily described by Prof. Cook as "simply an air-tight box, in which green succulent herbage may be placed and preserved as we preserve green fruit." Any structure which will answer this description and will exclude frost is sufficient for a silo. It has taken many years and much needless outlay to learn that. The evolution of the silo during those years has been marked by steady progress from the pit with costly masonry, to the present cheap and practicable wooden structure, wholly above ground. Experience has shown that walls of stone, concrete or brick will not exclude frost and preserve the silage as well as wooden walls with interlinings of tarred paper and confined air spaces.

The usual form of wooden silo up to the present time has been rectangular, long and comparatively narrow. The walls are of inch boards, nailed upon upright studding, with interlinings of tarred building paper. For structures of any considerable size it has been found necessary to make the studding of timber two inches thick and ten inches wide, set sixteen inches apart from centers. Even

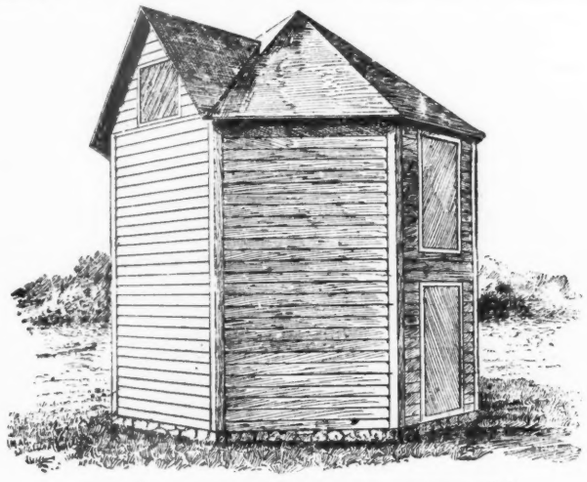


FIG. 1. PERSPECTIVE VIEW OF OCTAGON SILO.

with this large amount of timber great difficulty is experienced in resisting the lateral pressure from the heavy mass of silage within. Iron rods or other means of tieing the sides together interfere with the proper settling and removal of the contents. Another difficulty with rectangular silos is, when filling, to pack the silage into the corners so closely as to exclude the air. This matter is so serious that many silo builders cut off the right angles by a vertical plank fastened into each corner at an angle of forty-five degrees.

In the octagon form, built as shown in the accompanying perspective and plans, it is believed that the principal difficulties of the rectangular silo are measurably overcome. It may be made of any size up to thirty feet in diameter, but the one depicted here is twenty-one feet in outside diameter, and sixteen feet high at the eaves. It has a capacity of about eighty-five tons of corn silage. The foundation is of stone laid in cement mortar in a trench dug below the frost-line. The sills are of two-by-eight inch timber, doubled together with the ends projecting one past the other and interlocking like four-by-eight sills halved together at the angles. The inner face of each sill is eight feet long between joints. The plates are made in the same manner. At equal intervals between the plates and the sills is a series of horizontal frames, as shown in Fig. 2, each consisting of eight pieces of two-by-eight timber. These pieces are of uniform size and shape, each one being nine feet four inches in length on the longest edge, the ends cut to an angle of forty-five degrees. A stick twenty feet long will make two of them. It is cut in the middle, at the proper angle, and one of the pieces turned over. By this means a single cut leaves both ends in proper shape and saves taking out a triangular block. These frames are not halved together, but four pieces of each frame are laid top of the other four, at the angles, and bolted together, as shown in Figure 3.

When the foundation is completed and the sills properly secured, two upright boards are nailed at each corner. The horizontal frames and plates are then successively put together and each nailed in place. The inner and outer sides are next covered with upright boarding, save one side, where holes are cut for an upper and a lower door, each six-and-one-half feet high by three-and-one-half feet wide. The two middle frames are left uncut between the doors, and two-by-eight timbers are framed in place at each side of the doors. The inner and outer boardings are now covered with tarred building paper, great care being used to leave no holes uncovered, and to completely lap the edges. The inside is then lined with vertical boards put on so as to "break joints" with the first. The outside is covered with clapboards, drop siding or shingles, the latter laid six inches to the weather and the doors hung. When thus far completed the inside is given a heavy coating of hot coal tar. Prof. Cook recommends, in place of this, lathing the inside or lining it with grooved siding and plastering with cement mortar. In either case thoroughly saturating the boards and timber with crude petroleum would add greatly to the durability of the silo by resisting moisture and decay. The shingled roof runs to a point from all sides but one, which is gabled and provided with a door through which to convey the silage when filling. A silo of this form, with each side ten feet wide and twenty feet high, would have a total outside diameter of twenty-six feet, and a capacity of nearly 200 tons of silage. For that size or larger it would be necessary to have the horizontal frames not more than twenty inches apart from centers.

FIG. 2. VERTICAL SECTION.

The following are some of the advantages of this form of silo over a rectangular one: First, it is much stronger. Each one of the frames is like the hoop of a cask, the upright boarding representing the staves. For large silos the timbers may be made ten inches wide. Unlike silos with upright studding, increasing the height does not weaken the structure, additional frames only being necessary. Secondly, it requires much less timber. Thirdly, there are no angles greater than forty-five degrees. Fourthly, its capacity is much greater than that of a rectangular silo having the same external measurement.

Cutting and Marketing Asparagus.—This crop consists of the undeveloped shoots which, if allowed to remain, would soon produce branches and leaves. This removal of these shoots is most exhausting to the plant, and should not be carried to excess. The old rule, to stop cutting when green peas are abundant, is a safe one. As long as cutting is continued, cut clean, removing every shoot, large and small. After cutting ceases the shoots are allowed to grow, and if the bed had no dressing of fertilizer early in the season it should have one when cutting ceases. Well decomposed manure or a liberal dressing of fine bone, or superphosphate — 500 pounds to the acre —should be given. Nitrate of soda has been applied with good results. Salt is a favorite application with many. The growth of the tops, if the bed is planted closely, will so shade the ground as to prevent the growth of most weeds. The few large weeds that appear should be pulled by hand. Unlike many crops, asparagus may be sent a long distance, and if not sold at once will remain in good condition. It is always made into bunches, about four inches through and eight inches long. Handy implements

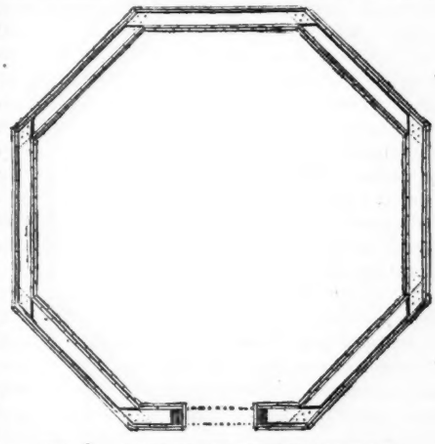


FIG. 3. HORIZONTAL SECTION OF SILO.

known as "bunchers" are sold at the implement and seed store. A home-made buncher of four upright sticks will answer for small quantities. Ties of Cuban bast, raffia, and sometimes of willow twigs are used, one tie being placed near the bottom and the other near the top of the bunch. The bottom of the bunch is cut off square. The bunches should always stand, and be kept in the dark. They are shipped in ventilated boxes or crates, deep enough to hold one row of bunches in an upright position, standing on a layer of damp moss. Moss or an abundance of paper should be put on the top, to prevent injury in case the box is overturned.

THE DECLINE IN THE CATTLE TRADE.

MISS MIDY MORGAN.

With our constantly growing population and its widening sphere of development, which brings with it increased wants spread over a larger area, how, with profit to the producer and satisfaction to the consumer, are these needs to be supplied? New conditions demand new methods; these arise with the exigency of the hour; some new modes of supply which come are speedily established: others appear and disappear after a brief trial. The question of food supply for large cities is one of great importance; how are thousands to obtain a daily supply of fresh food products? Only through a constantly fed channel. The bulkiness of many articles adds to their cost in transit, and to reduce this unnecessary outlay is the problem the solution of which makes or mars the success of the undertaking. Twenty years ago, when New York city consumed weekly an average of 6000 beeves, and when the profit to the seller ranged from $3 to $15 per head, cattle men rapidly made fortunes. When the weekly average reached 10,000 the cattle trade flourished; but when New York city and the export trade in beeves and dressed beef advanced to 15,000 beeves per week, the business declined from a profitable point of view. Each and all concerned, from the cowboy to the ranchman, from the broker to the shipper, and finally the wholesale slaughterers—all had to take a smaller margin of profit. Now, if an Eastern slaughterer can make, clear of all cost and proper business charges, one dollar per head on every steer slaughtered, his business pays him as well as, under altered circumstances, he can dare to expect. In 1882 the local trade in beeves on the hoof received its first serious blow. In the autumn of that year the consignments of Western dressed beef attained such large proportions that the demand for beef on the hoof shrunk at least one-third. From that date until 1887 matters went from bad to worse with the Eastern dealers; the ranchmen and the feeders of store cattle fared no better; the profit of the business was in the hands of Western slaughterers and of local retail butchers; the helpless consumer was worse served at former prices. In 1887 the local trade in the East improved, and again in 1888 there was a better local feeling, which represented the fact that the Eastern slaughterers were holding their own, but nothing more.

During these changes the farmers of New York State have remained supine; they have ceaselessly complained of hard times, but have not aided themselves or others by that improvement of their stock which the climate and productiveness of their State permit. Annually in the spring there is a wasteful destruction of young calves; tons and tons of the flesh of these miserable creatures are seized by the health board officials. Here is a double loss—the calf and the cost of freight. Again in the autumn and winter months the eastern live stock yards are disgraced by the presence of worn-out old dairy cows; the walking skeletons sell at 1¾ cents per pound, and frequently weigh as low as 700 pounds. The demand for milk in great cities is the promoting cause of this lack of improvement in the dairy stock of New York and other Eastern States; milk is what the dairyman wants, veal is a second consideration, and beef is not thought of.

This very condition of affairs aided the decline of the live stock business, while it fostered the trade in Western dressed beef. The conventions and committees engaged in eliciting information on the merits of the rival questions could, with advantage to producers and consumers, add to their labors the consideration of promoting local production. A healthy competition improves a business; a monopoly is one sided, and too generally takes to itself so large an amount of profit that producer and consumer alike suffer. The present low price of beef admits of a large and justly profitable export trade, which is a most valuable safeguard to the producer; the consumer is relatively hurt; if, however, local production sensibly increases, the foreign demand for the overplus of our Western herds would be an unmixed benefit.

The comparative sanitary excellence or otherwise of the two methods of supplying the great centers of population with fresh meats are equally balanced. The herds slaughtered on the Atlantic seaboard arrive from the States of Ohio, Virginia, Kentucky and Indiana, for a number of months, Illinois being credited duly or unduly, as may be, with thousands of cattle sold in Chicago but not bred within the State. Western dressed beef is largely drawn from the ranges west of the Mississippi and Missouri rivers. Texas also furnishes her quota, as she also does to Eastern centers, but not so largely as in the anti-Western dressed phase of the supply trade. One certain advantage that the local producer of grade beef of the best class has and always can hold is the absence of loss from shrinkage. This item alone insures the necessary profit. A steer shipped in Chicago for New York will lose in transit an average of 75 pounds on gross weight; this 75 pounds sold in Chicago, for example, at $4.50 per 100 pounds is a clear loss of $3.37½ per head. Shipped from Buffalo, the loss would be about one-third, and from Albany proportionately less. To offset this, local freight rates are to be considered. The shorter the route to be traveled the less the risk from accident; one dead steer or one bruised steer in a herd of 100 head will turn the scale the wrong way, and will absorb all profit.

PREPARATION OF VEGETABLES FOR MARKET.

JAMES K. REEVES, OHIO.

In marketing root crops do not let the press of summer work impel to slovenly methods. Beets, so long as sold in the bunch, should always be washed, as the bright red color of their clean skins is much more inviting than the rusty brown of the unwashed. If you have running water, place a trough so the bunches can be thrown in as soon as prepared, and in a very little time you can take them out bright and clean. If running water is not available, put them in the trough under the pump and leave them for half an hour, at the end of which a slight shaking about in the water will free them from the dirt.

Beets, onions, radishes, carrots, etc., all make a better appearance if a good part of the green tops are left on when they are bunched; as it makes the bunches rather too bulky when all the tops are left, it is best to cut off one-half or two-thirds, and trim off all dead and discolored leaves, thus giving them a fresh, bright look.

New potatoes should always be washed and sorted carefully, taking out all small and imperfectly-shaped tubers. As frequent handling of new potatoes and pouring from one receptacle into another destroys their fresh appearance, it is a good plan to put them at once into bushel boxes as soon as washed, and place these boxes in the market wagon instead of carrying them in barrels or loose in the wagon bed.

Sweet corn is a bulky article to carry, so no space should be wasted upon stunted or imperfect ears. Sort it carefully before putting in the wagon by opening each husk slightly so that you may see if the grains are well filled. Very early in the season it may pay to put the small, sound ears by themselves and sell at a reduced price. If gathered and kept over night sweet corn should not be packed closely in barrels, nor left in such piles that it will heat.

Peas, as a rule, should not be picked at all until the pods are so well filled that the bulk of the crop can be gathered at the first picking. Occasionally the price is such as to warrant going over the vines earlier, but it is not often that more than two pickings will pay. And it is not best to plant peas very largely unless sure that plenty of cheap help can be had in the picking season.

Cucumber vines should be picked over every day, as in propitious weather the fruits come on with wonderful rapidity. In sorting the small ones for pickles they should be graded into three sizes. Pick off, every day, all that are large enough to sell at all, and if any have been overlooked and grown too large, pick them off and throw away. The faster the fruits are removed from the vine, the faster new ones will come on.

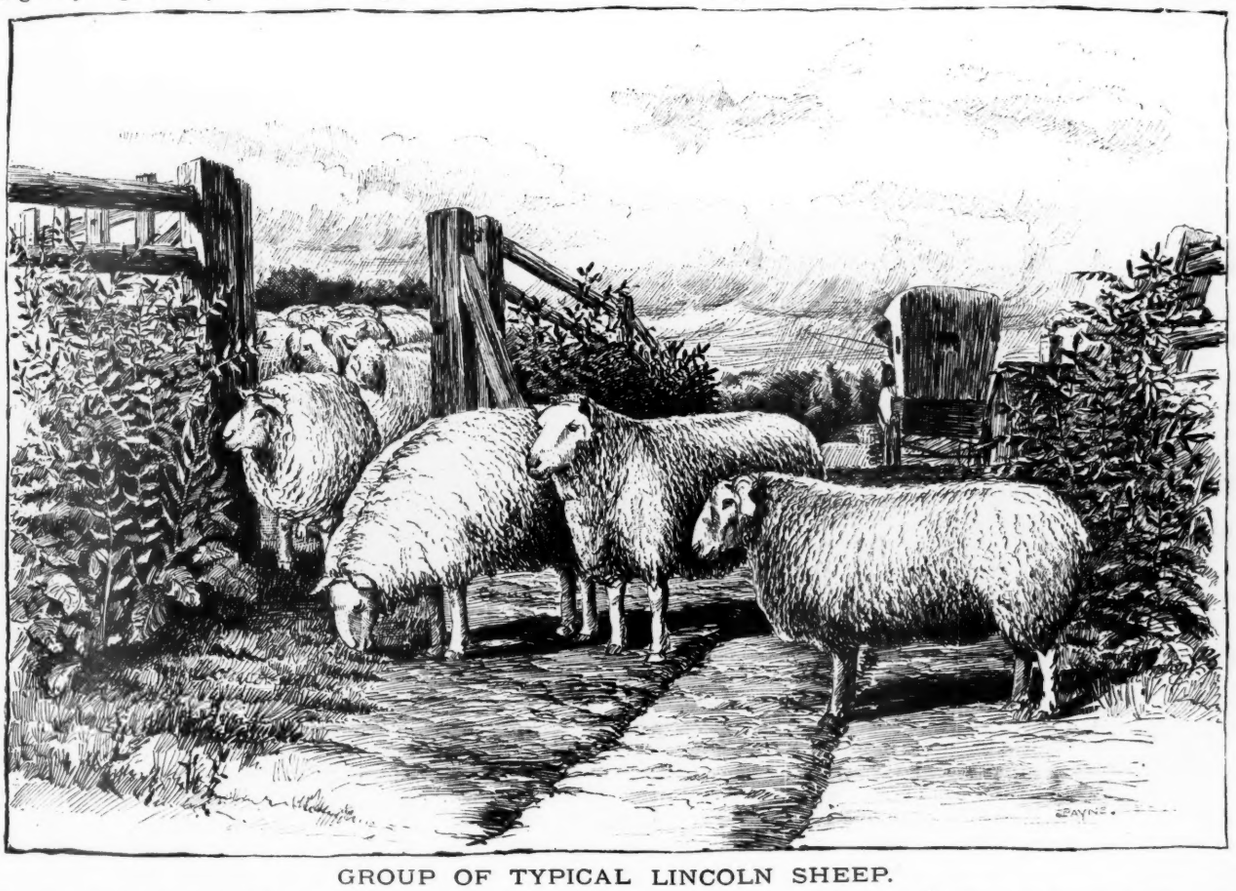
Do not leave any vegetables exposed to the hot sun after they are gathered. If they can be emptied at once upon a cellar floor, and left there until needed for the wagon, they will probably get to the customer in good shape. If the cellar is not sufficiently convenient, put them somewhere under cover and in shallow receptacles, not in barrels or bins.

In gathering early roots do it so that the rows may be thinned with as much regularity as possible, taking out the largest roots and giving the others a better chance to develop. Have a definite place for preparing the supplies ready for market, so that all the

waste material, such as tops, leaves, husks, etc., may go into a compost pile. They are rich in food elements and make a valuable manure.

LINCOLN LONG-WOOLED SHEEP.

The largest of the English breeds of long-wooled sheep is the Lincoln, of which a typical group is shown in the accompanying spirited illustration by John Payne. The Lincoln sheep of to-day are, in common with many other English breeds, highly improved animals, and much of this improvement is due indirectly to the genius of Bakewell. A century and more ago the sheep which were kept upon the heath land of Lincolnshire were long-legged, flat-sided and bony, with a light, uneven fleece, and so slow of growth that it was not until after the third shearing that they attained full maturity. But they were hardy, vigorous and prolific, with large frames and abundant muscle. When Bakewell created the improved Leicesters by skillful breeding, it was the signal for a general improvement among the English breeds of middle and long-wooled sheep. The New Leicesters were crossed upon the Lincolns, which were greatly improved by the cross. The general introduction of



GROUP OF TYPICAL LINCOLN SHEEP.

turnip culture had an important influence in advancing the Lincolns to a still higher standard of excellence. The turnips are now supplemented by liberal rations of linseed meal and other rich food, and the Lincolns have responded readily to this generous system of feeding and care. As now bred it is not uncommon for them to weigh two hundred pounds at a year old, and double that weight at two years, while there are authentic records of shearlings which attained a weight of three hundred pounds at thirteen months. The wool is long, silky and lustrous, in an even, compact fleece. The average weight of the fleece of full-grown ewes and wethers is from ten to fourteen pounds, but instances are known of exceptionally heavy clips weighing from twenty-two to thirty pounds of unwashed wool. The mutton resembles that of the Leicesters and Cotswolds, rather than of the Downs. The fat lies in masses, instead of being finely "marbled" through the lean. The ewes are very prolific, twins being very common and triplets not unknown. The Lincolns are hearty feeders and require an abundance of rich succulent food. They would run down very rapidly upon short, dry pasturage, where a flock of American Merinoes would live and thrive.

Lincoln sheep were brought to the United States in 1835, and numerous subsequent importations have been made. A fine flock was imported by Richard Gibson, of Canada, and several drafts from his flock were bought and carried to Kansas and Minnesota. They thrive well, with good care, on rich river bottoms and similar situations. But they have never attained great popularity in this country. They require more care and generous feeding than is compatible with the haphazard ways of too many American farmers. They have been largely carried to Australia, and many of the flocks there are unsurpassed in quality.

THE NATURE OF WEEDS.

DR. BYRON D. HALSTEAD.

Weeds, like the poor, we have always with us. The truth of this statement lies largely in the fact that there is a closer relation than we at first may be willing to grant existing between weeds and poverty. Weeds abound because there are so many poor thinkers and poor workers—that is, poor farmers and poor gardeners—who fail to be impressed with the importance of clean fields and abundant crops. If it can be established that poverty of thought is one of the prime reasons why weeds occupy the land to the exclusion of more valuable plants, it follows, as does the day the night, that weeds in their turn perpetuate an impoverished condition of the pocketbook. Weeds are not the only source of poverty, but they play no small part in keeping the poor in the world.

Some people are inclined to look upon weeds as a curse; that each weed has an inherent tendency to produce evil, and nothing but evil. They say that a "weedy" land is a "sick" land and, like a person who is ill, it needs some medicine—a remedy applied by means of which the soil is to be restored to its original health. It is not so much the soil as the system of farming that is "sick." Weeds have no bad influence on the soil, and if it were not for crop-growing, they would not be regarded as weeds. In short, weeds are plants that are less valuable than other forms of vegetation which man must grow for his sustenance. And a bad weed is one that is not only comparatively useless to man, but persists in crowding itself in upon and occupying the land, to the partial or entire exclusion of the crop.

In the light of this nature of weeds, it is hopeless to expect that chemistry or any other modern science or art will find a compound that when applied to a soil will make it impossible for weeds to

grow upon it, while ordinary crops thrive. If any such substance is offered under the glowing name of the "Oriental Weed-Killer," or "Death to Docks," etc., let it be said here, as a word of caution, that such compounds are sold for another purpose. The first thing under the consideration of weeds is to come to a full understanding that these pests differ no more from ordinary vegetation than do the mean men of a town from those who, for contrast's sake, we will call good. All men breath the same atmosphere, are warmed by the same sun, and feed upon the same organic compounds. It is true that men may differ as to the conditions that surround them, but the essentials of all their vital functions remain in common. So of the weeds; they all observe the same general laws of growth, and it is only when we look at their habits that their weedy nature is manifest. We distinguish a rogue in the human species by what he does or is inclined to do. A weed is judged by the injury it can do when left to follow out its inherent tendencies. No one is so deep-sighted that he can look into the tranquil man and read his character. No one, in other words, can divide all men into two groups—the good and the bad. Still harder is it to draw the line separating all plants into the injurious and the helpful. Some men are seemingly wholly good at one time, and far from it at another hour. Surrounding conditions very largely determine the quality of the man. Let us apply this same rule in the case of plants, and we shall see that a weed is such because of its surroundings. As before stated, there would be no weeds if man did not need to grow crops for his sustenance. It is evident, therefore, that the qualities which make a weed are those that may be common to all other plants, or, in other words, a weed is such because of circumstances which are entirely outside of itself. It is possible for the most useful species of plant to have some of its members take rank among the worst of weeds. In short, any plant that interferes with the growth of another, that, under the conditions then obtaining, is a weed. It may be clover in an onion bed; potato plants in a hot-bed of radishes, or corn in the flower garden.

If in this article it has been shown that weeds have nothing in their constitution that separates them from all other plants; that they live, propagate and die like other plants; that, in fact, a weed may belong to any species, depending upon whether it is in the way of a plant that under the particular circumstances is more desired by man, and that for their eradication we must be guided by the laws of vegetation common to weed and useful plant alike—if all these matters are understood, the foundation is well laid for the consideration of any systematic and profitable methods of weed eradication that may be proposed. We are always strengthened by a knowledge of the habits of an enemy, and especially of the weak points.

PLANTING AND CULTIVATION OF CORN.

The general introduction of improved implements has completely revolutionized the methods of corn culture. In the early years of our older readers the hoe was almost constantly in hand from the beginning of planting until the crop was "laid by." The corn farmer of those days was quite ready to echo Dudley Warner's wish for "a cast-iron back with a hinge in it." Now the farmer may "lay down the shovel and the hoe," and raise a much larger and better corn crop without them. After the land is plowed—which on large prairie farms may be done with a double wheel plow—the pulverizing, disk, or cutaway harrow reduces the soil to fine tilth, leaving it ready for the seed. Theoretically drills are far more productive than check-rows. Drills three-and-a-half feet apart, with the stalks six inches apart in the drill, have a ratio as seven to four with hills the same distance apart each way. That is, an acre in drills contains three-fourths more plants than an acre in check-rows, with equal space between. Furthermore, with plants standing six inches apart, each one has a better chance for full development than when crowded into hills. The only practical difficulty in drilling corn arises from the want of an implement which will drop two drills at once, with uniform distance between the kernels in the drills. With a good smoothing harrow it is quite as easy to give clean cultivation in drills as in rows. This should begin before the young corn shows itself above ground. In case of sudden showers followed by sunshine, soon after seeding, a hard crust results, which the smoothing harrow breaks up. This implement may be run lengthwise of the drills or rows at intervals of a week or less, without injury to the corn, until the stalk begins to shoot up through the center. As to manure, it is too late to consider it in a general way after the corn is planted. Stable manure should have been applied to the surface and plowed under, and commercial fertilizers are best harrowed into the soil before planting. But a top-dressing of ashes applied to the hills or drills either before or immediately after the corn is up, will benefit the crop under all conditions.

The subsequent cultivation of the crop, from the time when it is too large for the smoothing harrow, is best performed by means of a two-horse cultivator. There are many excellent patterns in the market, and it is a waste of time and labor to scratch back and forth between the rows with a little one-horse cultivator, when a good two-horse implement will do the work better in one-fourth the time. The ground should never be stirred so deeply as to cut the roots. Careful experiments have proved the theory of "root-pruning" corn to be a gross fallacy. The plant is a rank feeder, and needs all its root growth unimpaired. But the surface must be kept stirred and free from weeds until the crop is ready to be "laid by." In hot, droughty days a layer of loose porous soil on the surface acts as a mulch. On the other hand, a neglected growth of weeds will draw the water out of the soil, besides robbing the corn of its plant food.

THE RUTA-BAGA.

F. H. WILCOX, NEW YORK.

Of all root crops grown for general feeding purposes on the farm, the Swedish turnip, or ruta-baga, is one of the best. It can be grown cheaper than any other root crop, and works into the general farm rotation better than any other; it can be fed to all farm stock, from chickens to horses. It may safely be fed as soon as harvested, and continued till grass comes in the spring. Crops of Swedes of medium yield may be grown at low cost. Six to seven hundred bushels per acre is a fair yield, with average soil and good culture. The crop is grown in the same field with the corn and potatoes, changing every year, and usually on sod ground, spring plowed. The entire field is first plowed and fitted, then potatoes and corn are planted, and the Swedes last. But the Swedes do not need planting until about a month after the corn, and thus time is given to spring fallow the turnip ground, free it measurably from weeds and put it in fine tilth. It is best not to manure the turnip ground unless with superphosphate. Between the 10th and the 20th of June is the right time to sow the Swedes—certainly not earlier in the latitude of Western New York. Make sure of good seed. The ideal turnip is a thin-necked, round, smooth, hard root, that will weigh from four to ten pounds.

Mark the ground one way with rows two-and-one-half feet apart. Ridge slightly, so the cultivator may be put in earlier, and sow the seed with the drill as nearly two inches apart as possible. Select a growing time when the moisture is just right for prompt sprouting.

Not having put on barn-yard manure, and having killed one or two crops of weeds by spring fallowing before sowing, the weeds are not likely to trouble much. As soon as the rows are visible put in the cultivator. When the plants are high enough cultivate and thin with the hoe, chopping out the plants so they will stand no nearer in the row than twelve or fifteen inches. On this thinning depends largely the outcome of the crop. Do it remorselessly. This work with a new hand will require some pluck. When grown the turnip tops will cover the ground. Cultivate frequently till the growth of tops stops you. It ought not to cost more to grow an acre of Swedes than an acre of potatoes.

There is a knack in harvesting which saves expense. Four rows of roots should be pulled and thrown into a windrow in the middle space. Pull two rows at a time, grasping the tops with the left hand and, as the root is swung to cast it with the others, cut the top with the stroke of a heavy knife in the right hand, and let the root fall in the windrow and the top on the ground. Between two windrows of roots of four rows each a wagon can be driven, and the roots pitched in by hand, not using a basket. It is more work to load and haul the crop from the field and store it than to pull and top it.

Cool storage is essential. Beware of heat. If in a barn cellar look to the ventilation. A little frost on the roots in the cellar in winter will do no hurt, and it is far safer than heat with consequent growth, mold, and perhaps decay. A basement in which stock is kept can easily be made warm enough to winter Swedes. Large quantities should not be stored in the house cellar. They should be as convenient to the feeding places as possible, and a good root cutter is needed. Feed them to poultry, hogs, sheep, cattle and horses. Feed freely to stock, and they are not unwelcome on the table.

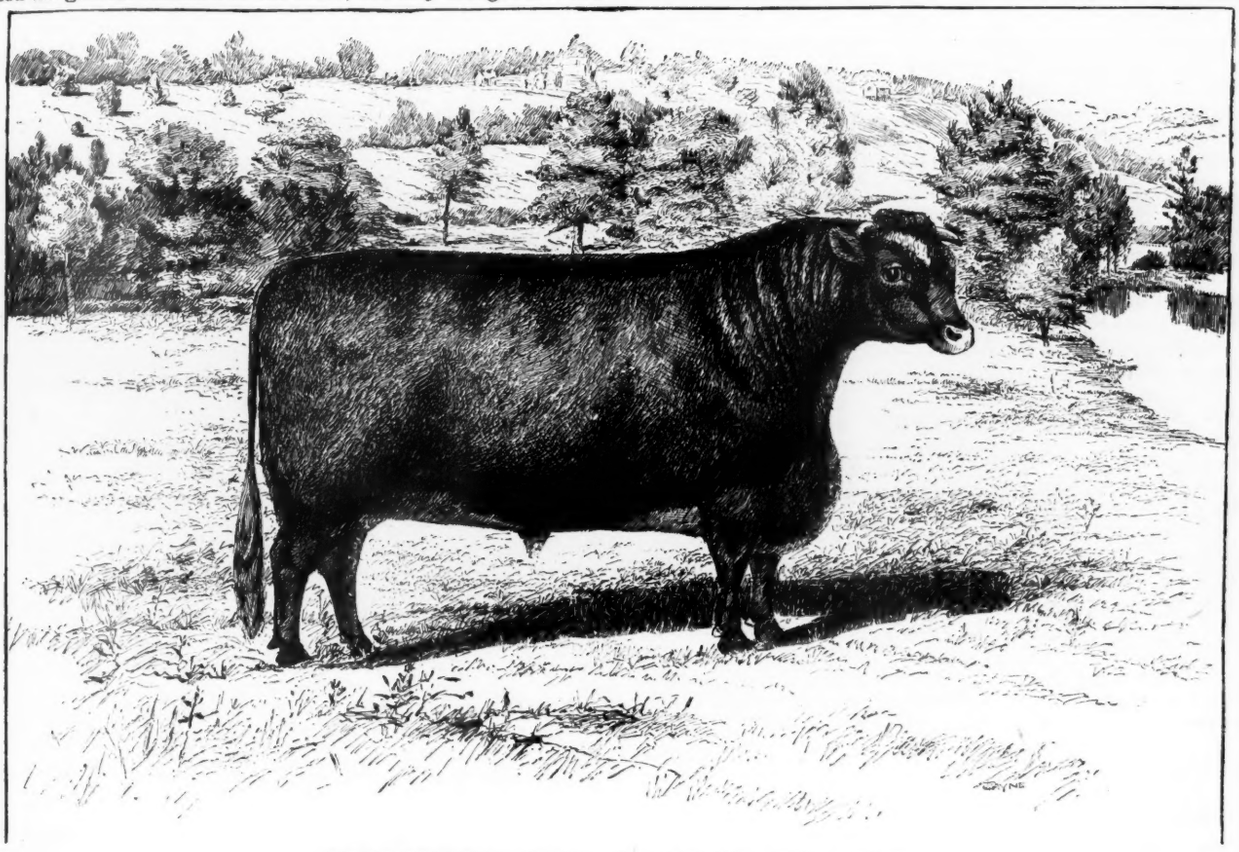
DUCHESS TRIBES OF SHORTHORNS.

No other breed has contributed so largely, in point of numbers, to raising the general standard of American cattle as the Shorthorns. Representatives of the breed were brought over in the very first years of our national existence, and subsequent importations, added to natural increase, have given the country immense numbers of these lordly cattle.

The Shorthorn is unquestionably a very ancient breed. There is conclusive evidence that in Durham and neighboring counties of England the cattle which were bred at a very remote period were substantially similar in style and conformation to the modern Shorthorns. But it was not until a little over a hundred years ago that intelligent effort was directed to the object of developing their capacity for improvement, by careful selection and breeding. In 1780 the brothers Charles and Robert Colling each owning a herd, began a systematic course of breeding from their own herds and purchases from others. Their success was marvelous, and during a steady career of many years they not only raised the general standard of the breed, but they brought forward several individual animals which were exhibited through England, exciting general admiration by their immense weight and fine points. Since Charles Colling, other breeders have carried forward the work to which he and his brother devoted their efforts. Notable among English Shorthorn breeders were Richard Booth of Warlaby and Thomas Bates of Kirkleavington. The breed has long been dominant in England; representatives of it have been carried to various parts of the Continent and all the British colonies, while in the United States the Shorthorns outnumber all other pure-bred cattle together.

In a race of cattle so carefully bred and so numerous as the Shorthorns there are, of course, different distinct families and tribes. Many of these descend from a famous cow called Duchess 1st, bred by Charles Colling and purchased by Thomas Bates in 1810. No other cattle of any breed ever attained such immense popularity, or commanded such high prices as these Duchess or, as they are frequently called, Bates Shorthorns. Several distinct tribes or strains of them are recognized; each one descended from some dam of notable excellence. Among these are the Kirkleavington, the Craggs, the Rose of Sharon, the Miss Wiley, the young Mary; and others, all familiarly known to Shorthorn breeders.

The Bates Shorthorns have had extraordinary success in the United States. Many of the enterprising American breeders made purchases directly from the original herd of Thomas Bates when it was sold in 1853. Edwin Thorne of Dutchess Co., N. Y., James O. Sheldon of Geneva, N. Y., and Lewis G. Morris of Fordham, N. Y., all established herds, from which choice animals were purchased and carried to England. Thence have sprung the Dukes and Duchesses of Geneva and of Thornedale, which are unsurpassed on either side of the ocean for quality and popularity. The herd of James O. Sheldon was sold to Wolcott & Campbell of New York Mills, who put it up at auction September 10, 1873, and realized prices which seem incredible. The notable sales were one cow for $40,000, and another for $27,000. Eighteen animals sold for $262,400, an average of $18,742.86 each. This sale was the culminating point for Shorthorn prices, nothing like those having been realized since. The sale created a decided sensation, and directed attention to the great value of the Shorthorns. Our illustration is of the pure-bred Bates Shorthorn bull 2d Duke of Kent 51,119, by Barrington Duke, by 14th Duke of Thornedale. His dam was the 3d Duchess of Kent, whose sire was the famous 8th Duke of Geneva. Second Duke of Kent 51,119 belonged originally to the herd of J. C. Hamilton, Flat Creek, Ky., and at the sale of that herd, in 1884, brought $6100. He is now owned in Washington Co., Va.



SHORTHORN BULL 2D DUKE OF KENT.

CAULIFLOWER CULTURE IN THE EAST.

C. H. ALLEN, LONG ISLAND.

No section of the United States seems so well adapted to the growing of the cauliflower as the northeastern part of Long Island, N. Y. For the earliest crop a piece of heavy sod ground is plowed during the month of April. It is then spread with fish scrap at the rate of one ton to the acre, which is thoroughly harrowed in. A strip is then prepared for sowing seed by raking the ground until it is in good condition. The first sowing of seed is made May 15. The seed for the main crop is sown ten to twenty days later. When the plants are ready to set, the ground is again plowed in an opposite direction from the first plowing, and then spread with muriate of potash at the rate of half a ton to the acre, or if fish scrap cannot be procured, some standard fertilizer is used after the second plowing without the addition of muriate of potash.

The Early Dwarf Erfurt and Snowball are the most popular varieties. The Algiers has been largely used, but for the past two or

three seasons has done very poorly, and will not be grown in the future. The plants are set three feet apart each way. This applies to Erfurt and Snowball; Algiers requires the rows four feet apart. As soon as the heads begin to form the leaves are tied over them to exclude the sunlight, which discolors them, and thus spoils the sale. When the heads are large enough to market, the leaves are cut even with the edge of the head; they are then covered with white tea paper, packed snugly in barrels, which are headed with cloth, and shipped to New York. Two ounces of seed is sufficient for an acre.

JUNE BUDDING A SUCCESS.

JASPER T. LAIRD, NEW JERSEY.

The most important element in budding this month is to get the trees large enough to bud by the 10th or 15th of June. For this purpose the seed should be bedded in June or July, or thereabouts, of the preceding year. Select a warm spot on the south side of a hedge or building; take off an inch or two of the top soil until a solid bottom is found, which should be packed down hard and leveled; place boards edgewise along the sides and ends of the bed, fastening them by stakes; put the seed in the bed from two-and-one-half to three inches deep; put light soil over them about two or three inches deep. Natural Tennesee or Virginia seed is best.

In planting, select an early piece of ground; plant the pits a little farther apart than for fall buds; cover a little deeper than usual, to protect them from late frosts. As soon as they begin to show above ground rake lightly with a steel rake. Force the little seedlings from the very start, giving them extra cultivation, always keeping the soil around them loose and moist. To the beginner the budding may seem tedious, but those who have done it for several years bud from two thousand to four thousand per day.

June is the best time to bud apricots and plums on peach, and the budding may be commenced with apricots, followed by plums, these buds becoming ripe sooner than peach. In all cases, whether apricot or peach, select, for obvious reasons, the ripest and most slender limbs. While cutting the buds, carry a dish of water in which to put them as fast as they are cut and leafed, never allowing them to wilt before putting in the water. If they lie in the water too long they will become water-soaked and spoiled. The man who ties the trees should be a careful, steady and trustworthy person. He should be provided with No. 4 cotton twine, cut in lengths of five to six inches. He should begin to take the leaves off the trees, according to the size, from one to three inches above the ground, for the space of one to one-and-a-half inches on each tree, leaving five or more leaves at the bottom, and cutting the ends of the limbs off; also cut the top back moderately. Always leave some leaves both at the top and bottom. The budding is done in the same way as fall budding, with the exception of putting the bud a little higher, but as near as possible to the cluster of leaves. For the convenience of the tyer, the budder must cut, just above the bud but a little to the right, a long, shallow notch, taking care not to cut so deep that it would break off easily. Figure 1 illustrates the entire operation, B representing the bud.

FIG. 1. THE BUD IN POSITION.

FIG. 2. BUDDING FINISHED.

To tie the tree, place the thumb and index finger of the left hand firmly on either side just below the bud, holding one end of the string under the thumb; with the thumb and index finger of the right hand take hold of the string near to the left hand as convenient; wrap the bud by making the right hand move around the tree, holding the string pretty firm against the tree; begin a little above the point of the bud and going down to its point, thus securing the lower end of the string, then wrap upward to the top of the bud, giving four to six turns both above and below the eye of the bud, being careful to cover the cross-slit; having wrapped the bud, fasten the upper end of the string by pulling it firmly down into the notch. After it is finished the bud should appear as in Fig. 2. Do not forget to continue cultivation. The trees should be forced during the entire growing season. The strings and tops of the trees should be taken off after a week or ten days, at which time the buds should be healed. Place a dull knife blade against the back of the tree opposite the cross-slit; with the thumb of the same hand in which the knife is held bend the top backward over the knife, breaking the top off. Do not let any of the string remain. After the tops are taken off, the suckers will soon begin to grow; when they get from one-half to three-fourths of an inch long, pinch them back. After the buds have grown three-fourths of an inch the suckers should be taken off, but the leaves at the butt left. This can be readily done by taking hold of the suckers separately and giving them a sidling motion, twisting them at the same time. When the buds have grown from an inch to an inch and a half pull off all the suckers and leaves, leaving nothing on the body except its bark and the bud. After this, sucker them whenever suckers may appear. There will necessarily be some trees which were too small to bud and some in which the buds did not take; these should be kept trimmed up to a straight whip, in order that they may not keep the sun from the little June buds.

FLOWERS FOR THE PEOPLE.

Of all kinds of flowers, the ornamental garden annuals are the most generally interesting, and present greater attractions to the mass of people than what is known as bedding plants; and the easiness of their culture, together with the small expense for seed, in proportion to results obtained, is a sufficient plea for their more general cultivation. A grand display of annuals can be made at less than one-tenth of what bedding plants would cost, and besides, the flowers are in every way more useful. A proper selection will give flowers at all times in summer and autumn, more particularly late in the season, when early frost has nipped the tender bedding "stuff," leaving the hardy annuals unhurt.

In growing annuals it is often overlooked that for a constant supply of flowers repeated sowings are necessary, and that the best results come from sowings made in June. Plants from seeds sown early are apt to dry off in August, while those from seeds sown this month do not commence flowering until about the first of September, and continue until killed by frost; thus giving a bountiful supply when most gardens are in the "sere and yellow leaf." There are many annuals that are not at all injured by a few degrees of frost; such should be selected for late blooming, as we want our gardens bright and cheerful as long as possible. The following list comprises a few of the most desirable kinds:

Asters: No finer or more useful class of plants can be found; the flowers are well adapted for any arrangement of loose flowers, and for garden display they are all that can be desired. Frequent sowings should be made, the last about the first of July, then a fine effect can be had in October; a light frost does not injure them.

Balsams: Well grown plants of the camellia-flowered section make fine garden ornaments, and the flowers make as attractive saucer bouquets as can be desired for the dining table; geranium or carrot leaves furnish a suitable green.

Calendula: The famous old Cape Marigold, now greatly improved, is a very hardy flower that last year we gathered by the armful nearly up to Christmas, and a splendid flower it is for bouquets. Several degrees of frost do not injure it.

Chrysanthemums: The annual species of chrysanthemum furnish charming flowers for bouquets the entire summer and autumn; they are as prolific as beautiful.

Candytuft should always be grown, in one variety only, viz.: the White Rocket, a splendid cut-flower. Sow often until July 15th. they are pretty, floriferous and a fine habit of growth.

Calliopsis: Strong-growing annuals most useful for wide borders, and charming to cut; sow early. Some of the perennial species, *lanceolata* and others, do well grown as annuals.

Clarkia: Make a point of having some of these annuals.

Convolvulus: Morning glories, both climbing and dwarf, have no equals in the realm of beauty. If anything will tempt a man out of doors early in the morning, it is a veranda covered with some of the newer varieties of morning glories.

Phlox Drummondii: There is not a more beautiful object in the garden, or one more easily grown; sow frequently, or keep the early flowering plants well cut back and they will flower until hard frosts put an end to their existence.

Petunias: Of course all who grow annuals grow these; they are indispensable to a collection.

Sweet Peas: These are so valuable for cut flowers that their presence is demanded in every garden. They should be sown early, deep, and kept up with nice brush. Always keep the flowers cut and you will have them in abundance.

Eschscholtzia: The bright colors and floriferous character of

the "Extinguisher flowers" have brought them well to the front among subjects for the embellishment of the garden. The seeds should be sown early, but will do well sown in June.

Pansies: Everybody knows how handsome pansies are, but few know how easily they may be had. Scatter a few seeds in any unoccupied piece of ground, in July, where there have been potatoes or peas, or where some annuals have died out,—a shaded place is preferable—and you will have a profusion of beauty in October.

Zinnias are indispensable for display.

Godetias: Every garden, however small, should boast of some of the representatives of this lovely group.

Mignonette: The Frenchman's "Little Darling" is as much a necessity in the garden as good nature is in the house; they are alike in their influences; this should be sown often; it is in perfection in October.

Sweet Alyssum is another necessity; a few plants mixed in with those of strong colors give a pleasing effect.

Nasturtiums: These produce such a blaze of color that they cannot be dispensed with; their foliage is as beautiful as their flowers; and the seeds when green quite as delicious for pickles. Sow these in poor soil for good effect. Don't buy plants, but always grow them from seed.

Gaillardias: The variety known as *picta Lorenziana* is one of the best plants in the garden; the flowers make a rich bouquet; and light frost does not injure them seriously.

Marigolds: Both the French and African varieties are desirable; they bear profusely, and some of the markings and various shades of the dwarf French varieties are singular.

Marvel of Peru: Make a border of this, say one hundred feet in length—get a collection of some eight or ten distinct varieties; sow ten feet of drill from each; thin out the plants to one-and-one-half feet apart, and you will have a border that for two months will rival in beauty and variety of color the same amount of azaleas.

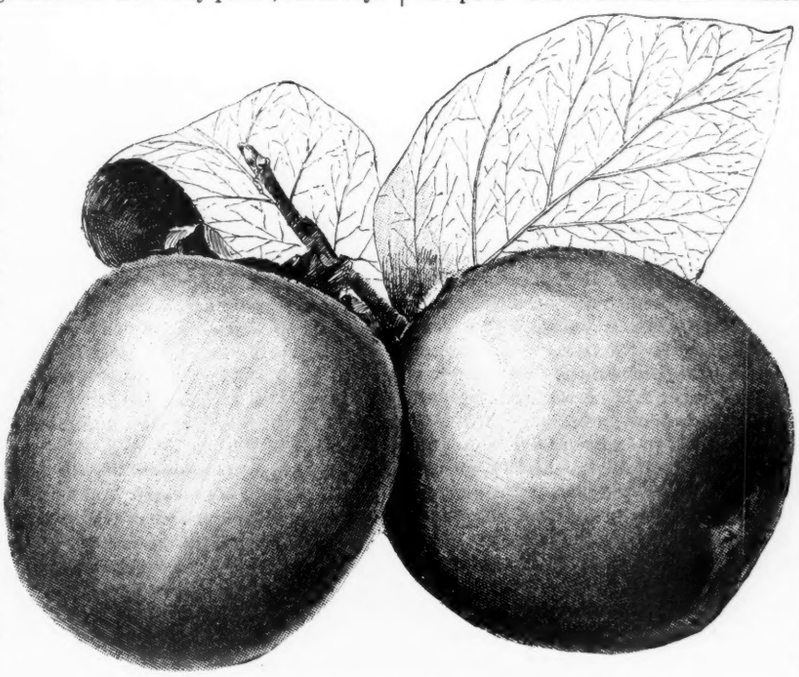
Portulaca: This is another garden necessity, the most cheerful flower in the garden; a most generous character, too, as it will bloom freely anywhere in the sun, no matter how poor the soil may be; it makes a splendid mulch for a bed of lilies.

Salvia: This should always be grown as an annual, as the young plants make much finer racemes of flowers than do the plants grown from cuttings from old plants, and the foliage is also a much deeper and brighter green.

We cannot extend this list further, although we have by no means mentioned all the valuable sorts.

A NEW KAKI.

The accompanying illustration represents a new seedling Japanese persimmon raised by W. A. Sanders, Fresno county, Cal., from seed received from Japan. "Nine years ago," Mr. Sanders writes us, "a personal friend, traveling in Japan, saved and brought me ten pounds of seed of the best persimmons he could find. From this I raised about three thousand seedlings. Some time after this a pear tree was destroyed in my orchard, by the irrigating ditch breaking into a squirrel hole directly beneath the tree, and when discovered the split and ruined pear tree had sunk to the bottom of a wash-out hole five feet deep. I filled up this hole with chips, leaves, stable manure and all kinds of California farm trash, including old iron, cans, broken bottles, etc. Then I selected one of the largest and the finest of my seedling persimmons, not yet bearing, and planted it on top of this. The tree has produced fruit for two years, and is the most prolific bearer I ever saw." The specimens received from Mr. Sanders were of uniform size—about one-third larger than our illustration—very handsome in appearance, less astringent and of better eating quality than any persimmons we have ever tasted. The Japanese persimmons are easily propagated by budding them on our native persimmons.



NEW SEEDLING KAKI (*Japanese Persimmon*).

JUNE CHICKENS.

MISS E. K. WINANS, NEW JERSEY.

The importance of hatching chickens early in the spring is often overrated. Real spring broilers, the highest-priced poultry, must come out of their shells in winter weather, but many thousands of others are needed in summer, autumn and winter. It is easy to raise chickens in June, and the combined profit of several hundred is worth working for. On farms where there will be at harvest time, plenty of corn and wheat for hungry hordes of half-grown Plymouth Rocks, or Dorkings, there is now a grand opportunity for an enterprising boy or girl who can command hens, eggs, and enough food for the young stock until that harvest time comes. Some boys and girls might have to agree to share the profits with the father, who would furnish the grain, and that would be a wise compact. One of the best known fanciers in New England prefers June-hatched chickens for his own breeding stock, they have such a good start in life, he says, with so much sunshine, and so many bugs to eat. In the summer, hens hatch best when they are set out of doors, with their nests on the cool ground. If there is danger of animals stealing the eggs, put wire cloth bottoms in the nest boxes. Give sitting hens plenty of whole grain, oats in preference to corn, in summer. Test the eggs, and when necessary make one good nest out of two poor ones. In June a large hen can take care of twenty chickens, if she has a suitable coop. If there are more than that in one brood, they will probably not grow fast, and to make them profitable, one must get them to salable size as soon as possible. Keep the youngest ones in the gardens if you are permitted. The rival rulers of poultry and vegetables are apt to have many a tiff over snipped-off beet tops, and scalloped cabbage leaves. The truth is, that up to two weeks old, chickens in a garden are beneficent assistants, with sharp eyes for turnip beetles; after that, they are a devastating army. If you are so placed that on a dry, sunny morning you can open the coop door, and set the hens at liberty to forage for their young, you are fortunate, and often will need to feed them but once until locking-up time comes. If they must be kept all the time in coops, have those and the feeding coops well made and clean. Do not be content with old barrels and boxes. If chickens of different ages must be kept together, have several feeding cages into which little chickens can go, and big bullies can not; and in them keep small grain.

As the summer goes on select your best birds to keep, or to sell as breeding stock. Put by also the strongest, quickest growing ones of the others, for roasting chickens to be sold late in the winter. Then sell the rest as fast as they are big enough, before the markets get their autumn overstocking. You can make any miscellaneous farm poultry profitable, but your work will be more interesting if you have one special kind of fowls, and find out for yourself the pride and pleasure of "high breeding."

It Pays to Take Care of the Tools.—Implements should be returned to the tool-house, after using, and properly cleaned. If there is no plow-shoe make one. It will save the roads. Spades, hoes and similar tools should be kept sharp, by acquaintance with the grindstone.

FARMING WITH BRAINS.

R. F. COLWELL, RHODE ISLAND.

Not many years since it was a fashion, all too common, to sneer at the so-called "scientific" or "fancy farming." The idea of paying anything like the same amount of attention to its details required by almost every other branch of business, was regarded as unworthy of any farmer of steady habits and good sense. Artificial fertilizers received a special amount of sneering and ridicule. Barnyard manure—and that, too, after it had been exposed uncovered to the storms, to the drainage of a sloping barnyard and to evaporation—was thought to be good enough for every purpose, and was applied indiscriminately, no matter what the crop to be raised. All this is rapidly changing. The sensible farmer now takes as good care of his manure as he does of the stock that made it. He buys commercial fertilizers adapted to his crop, and leaves no stone unturned—and few in his lots to be turned—in regard to thoroughly pulverizing the soil, drainage and thorough cultivation. Indeed, he pays as much attention to every detail as the cotton or woolen manufacturer, and in no other way can he expect remunerative results.

In no department of enterprise are brains more needed than in successful farming. By this is meant, not the mere possession of mental equipment, but a brain trained by experience, conversant with what is being done, and wise enough to see what method is best suited to the farm and stock. The farmer is sometimes one not devoid of ordinary sense or moral attributes, but who, shut in by his own small domain, is behind in the great advances the world is making. That this is true is a pity, but it need not be. In no department have greater advances been made, both in resources and methods, and the dawn of a bright day is already apparent.

The Grange is one lever which is to move the mass upward and onward. Losing its first distinctive purpose, it has become possessed of a much more vital and energizing one, the diffusion of intelligence and the cultivation of the social instincts. Everybody knows more than anybody; and concerted action cannot fail to bring about good results. The New England Granges have a course of study which the subordinate lodges are perusing with both pleasure and profit. The farmer's horizon has been too limited. He has seen and known only about his own few acres and those of his immediate neighbors. A dweller on the banks of the Thames or Scheldt sees only a sluggish, muddy river; take him to the summit of Mont Blanc, and a broad landscape lies at his feet. It is this elevation, this broadening of vision, that the agriculturists of this and every country need, and it will come. The competition awakened by the prizes offered by the AMERICAN AGRICULTURIST, and the rapid falling into line by manufacturers of fertilizers and agricultural implements, and by seedsmen, shows what leaven is working in the mass. To everyone who makes an honest effort there will be a fully adequate return, even though only a few can obtain the prizes. Then the results, set forth as they will be in the columns of this magazine, will furnish a fund of information worth to the nation a hundred times the amount of the prizes. The United States Department of Agriculture could well afford to duplicate each prize.

Brains will raise farming from the low position which it now holds, and place it where it belongs, in the front rank of honorable and profitable occupation; every reader realizes that. Good, honest, steady, hard work is of course a factor not to be ignored for an instant, but it is only genius that can succeed, and when to hard work is added a knowledge of the best method. Shall not each one of us use this plan when we work? We have a Secretary of Agriculture in the Cabinet, a compliment paid to no other branch of labor. Let us, by intelligent effort, raise agriculture to the high position it deserves.

Remedy for Cabbage Worms.—The green cabbage worm is a troublesome pest almost everywhere that cabbages are grown. It is the caterpillar of a small, white butterfly with black spots on its wings. These may be seen flying over the cabbage fields, in great numbers all through the summer, depositing their eggs on every plant. To keep the worms at all in check requires the almost continuous application of some strong insecticide. The trouble may be greatly lessened by poisoning as many of the butterflies as possible. To do this, attach artificial flowers securely to the top of sticks eighteen to twenty inches long, and cover the flowers with arsenic mixed with sugar, or with a sweet paste of any sort. Put these sticks into the ground at frequent intervals throughout the field; the butterflies will be attracted to the flowers, and will get enough of the poison to give them an effectual *quietus*. Besides the saving of labor, this is a much better method than to risk the too frequent application of strong insecticides to the plants. Arsenical poisons should never be applied after the plants have begun to head.

JAMES K. REEVE, O.

A "SOLDERING KIT."

JAMES F. HOBART.

Soldering is a very simple operation, and every farmer should own a "kit." A soldering iron is the first thing. It is not an iron, but a piece of copper weighing from one-quarter to one-half a pound, with an iron handle either twisted around the piece of copper or inserted like a hammer handle in a hole drilled from side to side, near one end of the piece of copper. The end farthest from the handle should be sharpened like a hatchet for some jobs, but to a square point like a rail fence post for general work.

Any blacksmith can make a soldering tool from the above description, or a complete outfit may be ordered from a hardware dealer by your grocer, for one dollar or one dollar and twenty-five cents. This tool will answer for mending tin ware, but it is not big enough to hold heat sufficient to solder a lead pipe.

Get a neat box for containing the soldering outfit. Perhaps a stout yet light box six inches wide and twelve or fourteen inches long may be had of the grocer. Cut it down to two inches deep, inside measurement. Bend the ends of a piece of heavy wire and drive them into the sides of the box four inches from one end in such a way that the wire will extend across the top of the box. This wire is to lay the copper upon after using, while still hot. The wire is also handy to hold up the stick of solder for use, one end thereof resting on the wire, the other end in the bottom of the box. Get a coarse file, an old knife for scraping tin, a mustard box with some rosin in it, half a soft brick, split edgewise,—one-half of this lengthwise will answer; the only objection to a whole brick is the weight. A bottle of "killed spirits of salt" completes the outfit. This is nothing but muriatic acid in which zinc has been dissolved until it will eat up no more. Ten cents' worth of acid put in a little wide-mouthed "squat" bottle, so as not to tip over easily, and some strips of old washboard or trimmings from the zinc sheet under the parlor stove will do.

If covered with dross, file the soldering tool until it is bright; heat it about hot enough to melt the solder—which, by the way, is made by melting together one part lead and two parts tin. Pour the melted metal into the edge of a *dry* matched board, held level, and it will cool in a convenient shape to use, after being cut into pieces twelve inches long.

The old Britannia tea pot, with the hole melted in its side, may be used for solder. Lead from tea chests can also be used, but it contains so much tin that equal weights with tin may be used. When the tool is heated, melt some rosin (with the hot tool) on the brick. Rub the tool back and forth, keeping the face of the point on the brick so it will be polished. Melt some solder on the brick with the rosin. The solder spreads itself over the tool, forming a white coating. In this condition, the soldering tool is said to be "tinned." Good soldering depends upon this condition of the tool, and nearly all failures in trying to solder may be laid to a poorly tinned tool. Rubbing on the ground will quickly clean a tool for tinning.

Never heat a soldering tool red hot. It destroys the tinning and hurts the tool. Hold near the face when removing from the fire, and a little practice will enable you to tell just the heat needed. Keep a wet rag in a blacking-box in one corner of the kit. This rag is to wipe the tool free of ashes as it is removed from the fire.

To solder a hole in a tin pan: While the tool is heating, scrape all around the hole until the tin is bright and clean; dust on some powdered rosin. If the tin coating is worn off dip a stick in the acid bottle and wet around the hole. This covers the iron with a thin coating of zinc, to which the solder will unite. Test the tool for heat, wipe on the rag, then touch to a stick of solder. A drop will adhere to the tool; carry it to the hole, and the hot solder (if everything is clean) will flow around and over the hole, making a neat round spot on the tin,—and the job is done.

Grit and Brains.—Grit is a good thing, an essential thing, but there must be brains to hold the lines. Holding on to a bad thing is just as disastrous as letting go of a good thing. Be sure you are not fooling with a buzz saw and then don't worry about a few suspender buttons.

WESTERN CURRANTS AS ORNAMENTAL SHRUBS.

F. W. ANDERSON, MONTANA.

In the Northwest are many native shrubs and other plants of peculiar interest on account of their economic value, or for other reasons. A noteworthy family is the *Saxifragaceæ*. Many of the species are cultivated for their great beauty; a few, like the currants and gooseberries, for food; and a still smaller number for their medicinal properties, which are generally astringent. In this article

FIG. 1. RIBES VISCOSISSIMUM.

several species of Western currants are illustrated. Only a few currants of the Rocky Mountain region are really fit for food, although the Indians eat the berries of most species. But as ornamental shrubs for parks, for planting on rockeries in private gardens, and, in some cases, on account of their graceful foliage they are worthy of introduction.

FIG. 2. RIBES AUREUM.

The common wild gooseberry (*Ribes rotundifolium*) is abundant in Montana. Its fruit is greatly prized by housekeepers for making into jelly and jam.

Ribes viscosissimum (Fig. 1), which is common in the mountains of Montana, is an interesting shrub. The large flowers, which are white, pinkish or greenish, are quite conspicuous. This shrub does well in a good loam in shady places.

Ribes cereum, a peculiar species which has no popular name, flourishes on rocky cliffs and hills. It is usually a low, much-branched bush. The main stems are a rich, dark reddish-brown, usually, and smooth; but the branchlets are grayish, crooked and roughened by the many aborted twiglets. The leaves are small, roundish, mostly three- to five-lobed and heart-shaped at the base. They are more or less thickly covered by glandular hairs, especially on the under sides. The aromatic odor given off from the resin on these leaves is very agreeable, smelling like some kinds of balsam. The flowers also have resinous hairs, which are especially plentiful on the ovary. On a healthy bush the flowers are numerous and showy. They are usually about three-quarters of an inch long and of a delicate rose-pink color. The berries following are a sort of red-lake tint. Their skin is very sticky, being thickly beset with glandular hairs. The seeds are surrounded by a thick and unusually mucilaginous pulp of a sweetish, insipid taste, seemingly devoid of any acid. This shrub will grow in dry localities and it is well adapted to growth on open, exposed rockeries. It does not like much moisture and should be planted on soil having faultless drainage.

The Missouri, Buffalo, or Golden Currant illustrated in Fig. 2, grows to a height of from four to twelve feet. It is commonly cultivated in "the States," but in Montana it is wild. In early spring its pretty yellow blossoms exhale a delightful spicy fragrance which is borne upon the breezes for considerable distances. The stems of this shrub are mostly smooth, light-colored, straight and leafy above. The numerous leaves are a bright, light green, long-petioled and mostly three-lobed. When a slight breeze is stirring they wave and flutter very prettily. The yellow flowers, which are about three-quarters of an inch in length, are arranged in axillary clusters. At first they are ascending, but in two days after opening begin to droop. A small species of bee, doubtless attracted by the perfume, is a frequent visitor to these flowers; several small kinds of beetles also crawl into the tubes to get at the nectar. Later the golden berries hanging in tempting clusters attract the blackbirds and robins as well as the boys and girls who go out with pails and pick gallons of the berries for their mothers to preserve. This shrub is a beautiful ornament, while the sweetness of the flowers and fine flavor of the berries certainly recommend it for cultivation

FIG. 3. RIBES LACUSTRE.

everywhere. It prefers a good rich soil and a fair degree of moisture, but not too much. It grows well from cuttings and when properly pruned branches well and bears an abundance of fruit.

Ribes floridum, one of the common wild black currants, needs no description here, being common almost everywhere; but it may be made into an extremely ornamental shrub. Jelly is sometimes made from the juice of the fruit, but it is not much esteemed. This shrub usually grows in wet, boggy places, but I have successfully transplanted thirty bushes to a high hill-side. When transplanted in this way they need plenty of watering for the first two seasons.

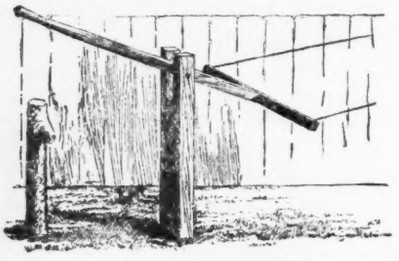
Common as it is in some localities and worthless as it is considered by some, I cannot pass by the graceful *Ribes lacustre*, or Swamp Gooseberry, without remark. In Montana it grows in pine woods and near the borders of brooklets in the mountains. I have never seen it here in truly swampy localities. Its beautiful foliage makes it well worth introducing as an ornamental shrub. It will grow well in the shade of large trees where some other shrubs might not thrive. It is just the shrub to plant in an unoccupied nook in a remote and secluded part of a garden where one wishes to make a little corner look wild enough to imbue one with the feeling of being "near to Nature's heart," and yet have it under full control. In Fig. 3 is represented a small twig of the Western form of this shrub, accurately illustrating the prettily cut leaves.

THE HOUSEHOLD

A Comfortable Kitchen.

ALICE CHITTENDEN.

"As if a kitchen ever could be comfortable!" I hear some indignant miss who "hates housework" exclaim. Well, my dear, if you take it in that spirit, I am sure your kitchen will not be comfortable, nor your husband, nor you either, for that matter. You "have a soul above housework?" I am not so sure of that. A truly great soul will perform in the best possible manner whatever is clearly duty. Did you not know that you may make even



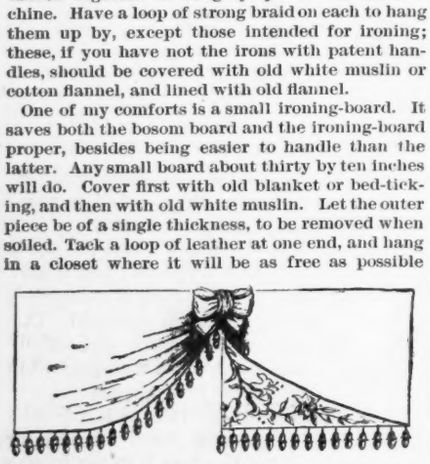
CLOTHES-LINE HOLDER.

"drudgery divine?" However, I am not going to moralize. The little things which go to make a kitchen comfortable are not included under the head of "modern conveniences." They are just the little things to which you may help yourself, and which will save you steps, and work, and worry. Such little things as a string in the end of the broom-handle, and a hook—not a nail—in a convenient corner on which to hang it. If you will use a piece of a broken leather shoe-string it will probably wear as long as the broom.

A strong calico bag in which to keep dusters, which may be taken out and washed on Monday, is a great comfort. It is so nice to know just where a thing is when you want it!

Take an hour some rainy afternoon or evening and make a good supply of holders, and you will feel a new pride in your kitchen. They are a great saving, besides, in the matter of aprons and dish-towels, with which housewives, notable in some respects, have been known to lift a pan from the oven, or a pot from the stove. They need not be elaborate, just two or three thicknesses of cloth, tacked together or roughly quilted on the machine. Have a loop of strong braid on each to hang them up by, except those intended for ironing; these, if you have not the irons with patent handles, should be covered with old white muslin or cotton flannel, and lined with old flannel.

One of my comforts is a small ironing-board. It saves both the bosom board and the ironing-board proper, besides being easier to handle than the latter. Any small board about thirty by ten inches will do. Cover first with old blanket or bed-ticking, and then with old white muslin. Let the outer piece be of a single thickness, to be removed when soiled. Tack a loop of leather at one end, and hang in a closet where it will be as free as possible



A NOVEL LAMBREQUIN.

from dust. Akin to this is a small piece of old mahogany board, which can be run into the legs and arms of little trousers and jackets, when seams are to be pressed open. These latter need not be dampened, owing to the moisture in the mahogany.

Two or three iron frames, somewhat like teapot holders, and which may be had at house-furnishing stores for a few cents each, are handy to place hot vessels on, and will protect the kitchen table both from black and scorch. In lieu of these a piece of clean board, half an inch thick, may be used.

Perhaps one of the greatest of comforts of all is a kitchen apron, or rather aprons, and plenty of them. Let them be sensible ones, too—reaching to the bottom of the dress, and two breadths in width. It pays to buy the strongest of gingham, which is never less than seventeen or eighteen cents a yard, for real work aprons, while seersucker, at five cents, is heavy enough for such work as washing dishes, sweeping and dusting.

Have a rocking-chair in your kitchen. If you do your own work you will snatch many comfortable and much-needed moments of rest in it, and if you have the right kind of girl she will need it sometimes too, and will not impose upon the fact that you have provided her with this luxury.

Have a shelf for such cook books as you may find useful, especially for one of your own compiling, so that your recipes are at hand when you want them, and not in the sitting-room, or in some bureau drawer. I always keep, in addition to these, some instructive or entertaining book which I am reading, and I take much "comfort" in snatching a few moments' reading now and then, although it takes some practice to be able to do this without burning the dinner.

Linen Center-Piece.

Outlining and embroidery on white linen are always a popular style of summer fancy-work, and we here give an extremely pretty grape leaf design for one of the center-pieces so much used now on dinner tables, beneath an *epergne* or bowl of flowers. The materials required are a twenty-seven-inch square of heavy linen jean, eight skeins of filo-floss — the fine silk that is warranted to wash—and three skeins of white couching cord. The embroidery silk should be in three shades, two skeins of the lightest hue, four of the medium, and two of the darkest. The couching cord is laid around the outline of the leaves and button-holed

EMBROIDERED CENTER PIECE.

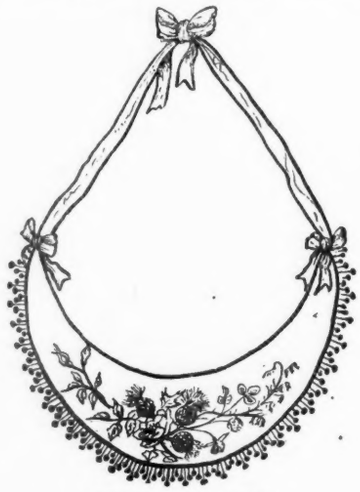
in place with two strands of the floss, the stems and veining also being done with doubled silk. Very expert embroiderers fill in the entire centers of the leaves with fancy stitches, but this is not absolutely necessary. After the work is completed, the outer edges are carefully cut out, thus forming a beautiful border of vine-leaves. These center-pieces are very pretty, too, on a table in a sitting-room, placed beneath the lamps to reflect the light.

A Mantel Lambrequin.

The mantel lambrequin here represented is the latest design that has appeared at one of the fashionable decorators', and for unique style and elegance is unsurpassed. The drapery is the length of the mantel, and is made of dark cardinal or maroon plush. This is lined with some dainty shade of silesia or silk, with a heavy interlining of Canton flannel or unbleached sheeting. The plush is divided in the middle and gathered on one side; the other side has a piece laid on of light blue or shrimp pink velvet or satin shaped like the pattern, and is embroidered or painted in Kensington style in oil colors, or is very effective in lustra colors. The very latest novelty is the heads of the tassels, which are of bronze, with a fluffy silk ball depending from them. These can be procured at the art stores. The board on which it is fastened is covered with plush and falls loose on each side the length of the front, and is also trimmed with tassels. Finish in the center with a double bow of wide ribbon, or sunflower shaped leaves made of the light velvet, with black center worked with yellow. Fasten to the board with upholsterers' gilt-headed tacks.

Crescent Pin-Cushion.

One of the pretty little novelties now seen in the stores among fancy articles is a pin-cushion cut in crescent shape from cardboard. Two of these are



A PRETTY PIN-CUSHION.

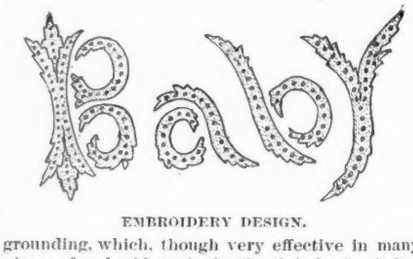
cut and covered with satin or velvet and overhanded together. Paint or embroider on both sides some pretty flower or conventional design, or work in stars with gold thread. Pins may be stuck in the lower edge to represent rays; or finish with fancy fringe, or gilt drops. Cut the crescent about ten inches in length — allow for seams. Finish with ribbon and bows. To be hung on a bureau.

A Clothes-Line Elevator.

Our illustration shows a device for carrying two clothes-lines, both of which may be elevated at once. It consists of a stout post set well into the ground, and having in the upper end a slot two inches wide and six long. In this is a lever of tough hard wood, two inches square and six feet long, playing freely on a half-inch bolt, which extends through the post from side to side. One end of the lever is rounded off, and firmly mortised to the other is a cross piece three-and-a-half feet long, near the extremities of which are attached the clothes-lines. After the lines have been filled, the long arm of the lever is brought down and hooked under the projection of the short post, elevating the lines with their burdens about two-and-a-half feet above the original position. This action is reversed when it is desired to reach the lines.

Embroidery Design.

This is a handsome design for silk embroidery on soft flannel, cashmere, velvet, or almost any material used for baby's belongings. Use coarse and fine silk or floss; the coarse for the outline of the letters, which should be in outline stitch, and for the large French knots; and the finer for the



EMBROIDERY DESIGN.

grounding, which, though very effective in many pieces of embroidery, is simply plain back stitches irregularly set yet all slanting in nearly the same direction.

A very different, but equally pretty effect may be produced by simply following the outline of the letters with a double row of heavy chain stitches.

This design would be pretty, brought out in white

embroidery cotton, on daintily hem-stitched sheets and pillow slips for baby's crib.

Shoulder Cape (Dutch Crochet).

Materials: Starlight zephyr, Germantown, any shade desired, about three skeins; a No. 8 bone crochet hook.

Commence for the neck with a chain of seventy-six stitches.

First row—One single crochet in the fourth from the hook, one chain, miss one, one single crochet all along.

Second row—Two chain to turn, * wool over the needle and raise a loop under the one chain, wool over the needle and raise another loop in the same place, wool over the needle and raise a third loop (all the loops to be as long and as loose as possible); draw the wool through all these loops, and then through the two stitches on the needle, one chain, repeat from *. There should be thirty-seven clumps in the row.

Third row—Three chains to turn, one single crochet above the first clump of loops, taking up both threads of wool, * one chain, one single crochet above the next clump, * repeat from *, increase six times in this row by working an additional one chain, one single crochet above the seventh, nineteenth, twenty-fifth, thirty-first and thirty-seventh clumps of the preceding row.

Fourth row—Two chain to the turn, and work in clumps all along the same as in the second row, but now there should be forty-three clumps.

Fifth row—Three chain to turn, one single crochet above the first clump of loops, and one chain one single crochet in each clump all along, making an increase above each increase of the third row.

Sixth row—Two chain to the turn, and work in clumps the entire length of the row, forty-nine

A PRETTY DOYLEY.

clumps in all. Repeat these two rows, always increasing six times in the single crochet row, until the cape is the required size.

Knot in fringe at the bottom. Work a row of holes at the neck, and run in ribbon.

To Prevent Mold in Fruit Jars.

S. BARKER.

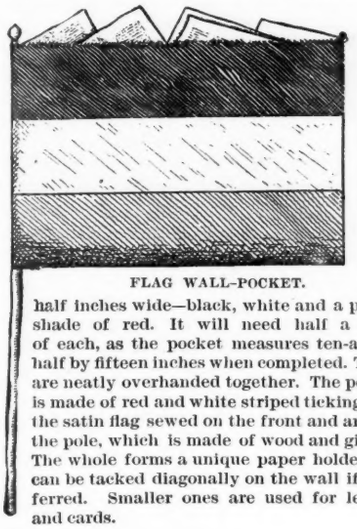
One of the great troubles in preserving fruit in glass jars is to prevent the formation of mold on top, and the consequent spoiling of fruit when it rises above the top of the syrup. A very effective, cheap and simple device is a disk of thin veneer of wood, from one-sixteenth to one-twentieth of an inch thick and from two-and-three-quarters to three inches in diameter, for one-quart jars, made from gum, beech, birch, elm or ash, as these woods have no taste nor flavor and will not injure the fruit. To use, dip in hot water to prevent cracking, slightly bend so as to slip in the neck down below the shoulder of the jar; press down on the fruit so as to allow the syrup to rise over it. The shoulder will keep it down and in place. When you wish to use the fruit, remove by running a fork under and picking it out.

A Dainty Cake Napkin.

A pretty little fringed doyley to lay on a cake plate is quite inexpensively made of a small square of fine white linen—twelve inches each way—fringed on the edges and embroidered in two shades of yellow and brown filo-floss. In the dainty design here given the daisies are yellow, with brown centers, the motto "Sweets to the Sweet" also being outlined in brown. The circle and dots are yellow. The rays of the flowers are done in overhand work, and the centers are filled in with French knots.

Flag Wall-Pocket.

We have selected the German flag for our wall-pocket. Of course any other can be substituted and made up in the same manner. The flag is composed of three strips of ribbon three-and-one-



FLAG WALL-POCKET.

half inches wide—black, white and a pretty shade of red. It will need half a yard of each, as the pocket measures ten-and-a-half by fifteen inches when completed. These are neatly overhanded together. The pocket is made of red and white striped ticking, and the satin flag sewed on the front and around the pole, which is made of wood and gilded. The whole forms a unique paper holder. It can be tacked diagonally on the wall if preferred. Smaller ones are used for letters and cards.

Have a Scrap-Book.

Do you keep a household scrap-book? If not, you ought to. If, whenever you come across a good recipe, an item which gives some information that you think will be useful, sometime, or some scrap of knowledge that you would like to preserve for future use, you cut it out and put it, then and there, into a scrap-book, you will soon have a valuable collection of hints and helps. But if you don't do this you will be sure to mislay the paper in which you read it, or to forget all about it in a short time. In making such a scrap-book, we would suggest having several departments,—one for "Recipes," one for "Medical Information," one for "Garden Hints," and so on. In this way you will keep things from getting mixed, and when you want to find anything you will know where to look for it. If you have no gummed scrap-book, you can lay the items by until you get time to make some paste and put them where they belong. The gummed books are very convenient, because all you have to do to fasten an item in is to moisten the back of it and apply it to the page. Encourage the children to make scrap-books. When they read anything that pleases them in a paper you do not care to keep, have them cut it out and put in a book where it can be preserved for future use. Give them pretty pictures to brighten its pages. In this way you can form a habit of taking care of scraps of information which will be very useful to them in later life; it is on the principle of "letting nothing be lost." We know two youngsters who have scrap-books of their own making which they take more pleasure in than in any other book in the house, and they have quite a library to pick and choose from. Their books are full of pretty stories, poems, pictures, puzzles,—all those things which interest children,—and by degrees they are acquiring a habit of collecting useful hints and articles that have a connection with their studies. More than once, of late, we have seen them consulting their "books of reference" for some information required in the school room. How much better this is than to have them wondering what became of the paper in which they read such or such an article!

CLOTHES-PEG SHOE-BUTTONER.

The Care of Window Boxes.

Window boxes are more often failures than successes. Why? Because they are not properly cared for. It must be borne in mind that a window box, from the exposed position in which it is placed, loses moisture very rapidly by evaporation. The wind and air get at it from below as well as on the side, ends and top. Only that side next the building is sheltered. It will, therefore, be readily understood, if one stops to think about it, that a great deal more moisture must be taken from the soil in such a box, in a given time, than it would be possible to extract from the soil in a pot or box whose exposure is less. The secret of growing plants well in such boxes consists in giving not only a great amount of water, but in giving it often. Enough should be applied every morning and evening to thoroughly saturate the soil, and the way to make sure that the soil is wet is to keep on applying water till some runs off at the bottom of the box. If it is given in small quantities, it will not be long before the leaves begin to turn yellow, and very soon you will have a sickly-looking plant, and in a short time it will be dead; just because there was not enough water given to moisten and keep moist the roots below the surface.

One of the most satisfactory plants I have ever used in a window box is the common single Petunia. It will bloom profusely, is bright and fragrant, and soon covers the entire surface of the box, and droops over the sides until they are wholly concealed. The Madeira vine is pretty

NO. 1. OUTLINE SPRAY.

NO. 2. OUTLINE SPRAY.

when planted about the edge and allowed to droop in festoons. The Heliotrope is a good flowering plant for such use, if care is taken to give water enough. It is fond of strong sunshine, but soon suffers if its roots are allowed to get dry. A scarlet Geranium will brighten up a window wonderfully, and a good plant to use with one, about the edges, is the Nasturtium, with its brilliant yellow and maroon flowers and pretty, pale green foliage, with which the box will soon be covered.

Designs for Outline Embroidery.

These simple but elegant little sprays may be worked on silk, linen, fine lawn, flannel or any material usually decorated with embroidery, either in outline or Kensington stitch, using one color or more in their reproduction, according to taste. Either would be appropriate for anything requiring a powdering,—that is, figures at intervals all over the surface.

To accompany No. 1 a vine, that will form a straight or curved border as desired, may be produced by joining the stem of one pattern to the pattern preceding it at the spot indicated by the dotted line.

A pretty border of detached sprays may be developed from No. 2 by turning over every alternate pattern, so that the berries may turn first to the right and then to the left.

Dressy aprons of soft silk, or of thin linen, are often ornamented with such designs. They are just the thing for fruit doyleys also.

Shoe-Buttoner.

A clothes-peg may be converted into more uses than one, as is here shown. It makes a novel shoe-buttoner. It will be best to let the boys take this in hand, as there is some pounding and filing to be done. First, chop the handle off a common button-hook and sharpen the end of it to a point. Bore a hole in the top of the peg and hammer it in. Give

it all several coats of gold paint, and tie two colors of narrow ribbon around the head of it. The best way to buy gilding for ornamental purposes is to first buy a bottle of sizing, then a ten-cent bottle of any bronze powder you wish to use. Give the article two coats of sizing, and when the second is nearly dry, dust with the powder. You can get besides gold, silver and copper of almost any shade, and several colors on one article make it very showy, they come out so brilliant.

Straw Hats and Wash Dresses.

It is evident that low crowns have come to stay, for awhile at least; that bonnets and toques are small and round hats either medium size or very large. Useful bonnets are of plain Milan braid, chip or open-patterned straw, and frequently two colors appear in stripes on one bonnet. The crowns are rather long and the sides close and short, while the fronts are given a full effect by a straw coronet or by a soft puffing of velvet, silk or lace. The trimming is generally laid flat across the top, but, if height is required, two or three tall loops of ribbon are set lengthwise, with the selvages toward the front. Narrow ribbon strings or wide lace ones are worn this spring, but when the weather becomes warmer, stringless bonnets will be popular. The latter are more graceful than formerly, being arched in a narrow curve above the forehead, instead of the trying sharp peaks. For dress bonnets, however, straw will not be used, but thin materials, such as figured net, gauze, tulle, crape and silk muslin, made over lace frames. The toque will remain as a formidable rival of the bonnet, while low-crowned, round hats of medium size are now seen on the city streets. For summer and country wear, though, the large Shepherdess hat, with broad brim and nearly flat crown, will be the favorite and will be heavily weighted with loops of ribbons, clusters of flowers and many nodding plumes. Large black hats may be worn with gowns of any color, and for this season are sure to be popular. They are frequently formed of two kinds of straw, or else are of an open-work design, with gilt or silver braid drawn through it. The trimmings are colored feathers and flowers, and an old fashion is sometimes revived of a fall of lace all round the brim, a scarf veil being fastened at the back, to be wound about the neck.

Among the new imported trimmings, brocaded ribbons take a foremost place and are very rich and effective. Tinsel effects also remain a decided feature, while shaded and chine flowered ribbons are largely shown, and there is a bewildering variety of stripes, plaids and blacks, even plain ribbons displaying in the weave a peculiar marking or large bird's-eye pattern. The colors, too, are odd and attractive; the greens running the gamut, from grayish green shades up to the brightest emerald; the browns favoring the wood and chestnut tints; the grays being dark silver or light heron gray; while the blues and pinks are of the soft, dull, antique hues. Gilt, oxidized silver and jet ornaments will also largely appear on all hats and bonnets in the form of pins, buckles, cimeters, etc., and especially butterflies poised lightly on loops of ribbon or high aigrettes.

In connection with straw hats we naturally think of cotton gowns, and the simpler these are made this season the more stylish; for the late Paris fashions say: "Dresses next season will be plain, not much trimmed and rather straight. Corsages will be long and sleeves will have a jockey or other fullness on the shoulders." A black ribbon sash will be a most profitable investment for any girl or young lady, as it is the correct thing to wear with all ginghams, cambric and percale frocks, and will take off the lanky look that the lack of back drapery is apt to give. Pale buff, green and pink prints are especially pretty with black sashes. Plain cotton morning dresses consist of but two pieces, a belted waist and full straight skirt, minus waist lining or foundation petticoat. The bodice may have a tucked yoke, if liked, but if not, the only seams are those on the shoulders and under the arms. The fronts are gathered on the shoulders and both fronts and back at the waist-line, where they are sewed to a belt. This waist may be thrust beneath the skirt or else extended longer, hemmed and worn outside. The sleeves are quite high on the shoulders, of coat shape or else gathered into narrow, turned-back cuffs. The waist is fastened with small pearl buttons and the neck finished by a standing band or turned-over collar. The skirt should be four-and-a-half yards wide with a deep hem, and the top is sloped from the sides to the front, making the front breadth two or three inches shorter than the back. The two back breadths are closely gathered and made to appear very full. A sash, or a belt of the material or of embroidery, is worn around the waist.

Very smart little cotton gowns that are more dressy are also made up in princess shape, a redingote of plaid or striped zephyr or batiste opening over a plaited front of plain fabric, with panels of the same down the sides. The new white muslin frocks, too, are most fresh-looking and attractive, and are largely made for graduating dresses and afternoon wear, with an empire belted waist, trimmed with open-work embroidery down the fronts and sleeves. The full, gathered skirt requires five breadths of muslin and has several rows of insertion above the hem. The empire sash, which gives the style to this costume, is of wide ribbon, with a boned lining underneath to keep it in shape and preserve the slender appearance of the waist. The waists of cotton dresses are always neater with "bag seams," which conceal all raw edges. Linings should be cut large and well shrunken before putting in. It is best to mount cuffs and collars of embroidery separately, as they often require washing while the frock is quite clean. When both figured and plain material is used, a slightly draped skirt is mounted on a foundation skirt, which is made without reeds, but has tapes to hold the fullness back.

To the list of wash dresses are now added the washing silks and washing flannels, which are lovely, made up with plaited skirts and sailor blouses or spencer waists, while the "flannelettes"—which are part wool and part cotton—are much liked for morning wrappers and for tennis and boating dresses.

Household Conveniences.

EVA M. NILES.

There was never a time when the decorative arts were so generally cultivated in the homes of the people, or when the work of the amateur had attained so high a degree of excellence as at the present day. Painting, china decoration and Kensington embroidery are now common accomplishments. The scope of present day fancy work is wider than ever before, but not only do high-art specimens prevail, but simple subjects may, by a few graceful additions and embellishments, be classed among the desirables of decoration.

Book Covers or Blotting Cases.—A pretty cover for a Bible or some other well-used book is always nice for an elderly lady, and the same shaped case may be converted into a blotting book for a gentleman. The descriptions for making one will serve with a few alterations for either. The dimensions would, of course, vary, but the ones given will be found to make a suitable size for a blotter for a writing table, and can be altered to suit any book that it may be wished to cover. Cut a piece of wiggan twenty-four by eleven inches, a piece of figured velvet twenty-five by twelve inches, and a piece of satin the same size. Lay the velvet on a table with the wrong side up, place the wiggan on it, and over this the satin, with the right side out. Baste all these carefully together, turning half an inch of the satin and velvet in all around the edges. Now turn the flaps down four inches on each side of the cover, and overhand all the edges neatly together. A piece of narrow ribbon, half a yard long, should be sewed to the top of the center of the case and passed through a loop, made for the purpose, at the lower side. This will serve either to hold the blotting paper in place or, if the case is intended for a book cover, may be used as a book mark. Some pieces of blotting paper should be passed through the ribbon band if it is intended as a blotter. The covers of the book are slipped under the flaps of the case, which can be easily taken on or off. These covers can be made of stout canvas, upon which may be painted, or embroidered, flowers, figures or quaint mottoes.

Shaving Paper Cases.—These can be made in various shapes, and the leaves can be of paper or muslin, as desired. At the fancy goods stores may be found leather covers of a convenient form and size. These are covered with perforations which are intended to mark the pattern and also allow the needle to pass easily through the leather. A very pretty case was of mouse-colored leather. Red filoselle was sewed from one hole to the other in a back stitch, and a few stitches of yellow silk taken here and there to relieve the pattern. Leather was provided for both the back and front of the case, but the pattern on the different sides was a little varied. After the covers were embroidered, they were lined with red silk, and bound with narrow red ribbon, and a ruching of red satin ribbon sewed all around the edge of the upper cover to hide the long stitches made in lining and binding it. A loop of ribbon is sewed to the top, to hang the case by; the sides of the case are sewed on to this, and long ends of ribbon allowed to hang inside. These are to fasten the paper in its place. In the shops where the cases are prepared, tissue paper is always on hand, cut to shape, with the edges pinked out, making a pretty finish. About one hundred sheets come in a pad. A small hole made near the top allows the ribbon to be passed through it, and so tied in its place in the case. Each sheet of paper should be carefully separated, as they are so matted together that more than one may be pulled off in a hurry. Another form of shaving paper case is more simple. A piece of colored satin ribbon, three inches wide and ten inches long, is doubled and the ends sewed together; one side is then sewed up, leaving the other open. A piece of fine silk muslin, five inches wide and seven inches long, is then sewed to one edge of the ribbon pocket, which differs from most pockets in having its mouth hung down instead of up. A spray of flowers, some motto or monogram must be painted on the muslin (if a spray of flowers part of it should straggle over the silk). Tissue paper must now be cut to fit the pocket. As this is square at the top, instead of coming to a point, as the first shaving case did, two holes, one in each end of the paper, are necessary. A narrow ribbon is passed through these holes and pushed through the top of the satin ribbon and tied in a loop, to hang the case by. A third case can be made to look like a small book. The covers should be cut out in cardboard; five inches by ten is a good size. This cardboard may be left uncovered and painted with some appropriate design; or it may be covered with brown linen or satin and embroidered. The leaves for this book may be of either paper or linen. If the latter, the edges of the linen should be neatly fringed out for about half an inch, and on each one the initials of the person for whom it is intended should be marked in small letters in cross stitch. A number should also be placed in one corner so that after the leaves have been used they may be washed and returned by the laundress, who otherwise would not notice the importance of the wee rag, and would probably throw it away. A ribbon band should be sewed in the book, under which the leaves may be easily slipped and a loop of ribbon provided, by which to hang the case to the shaving glass. Many ladies object to having razors wiped upon their towels. Good mottoes to place on a shaving case are:

"Who doth a razor keen employ,
Hath mind at ease to life enjoy."
"Cut and come again."
"A penny saved from the barber's shop
Is a penny gained and a penny got."

Kitchen Sewerage.

J. A. ROYCE.

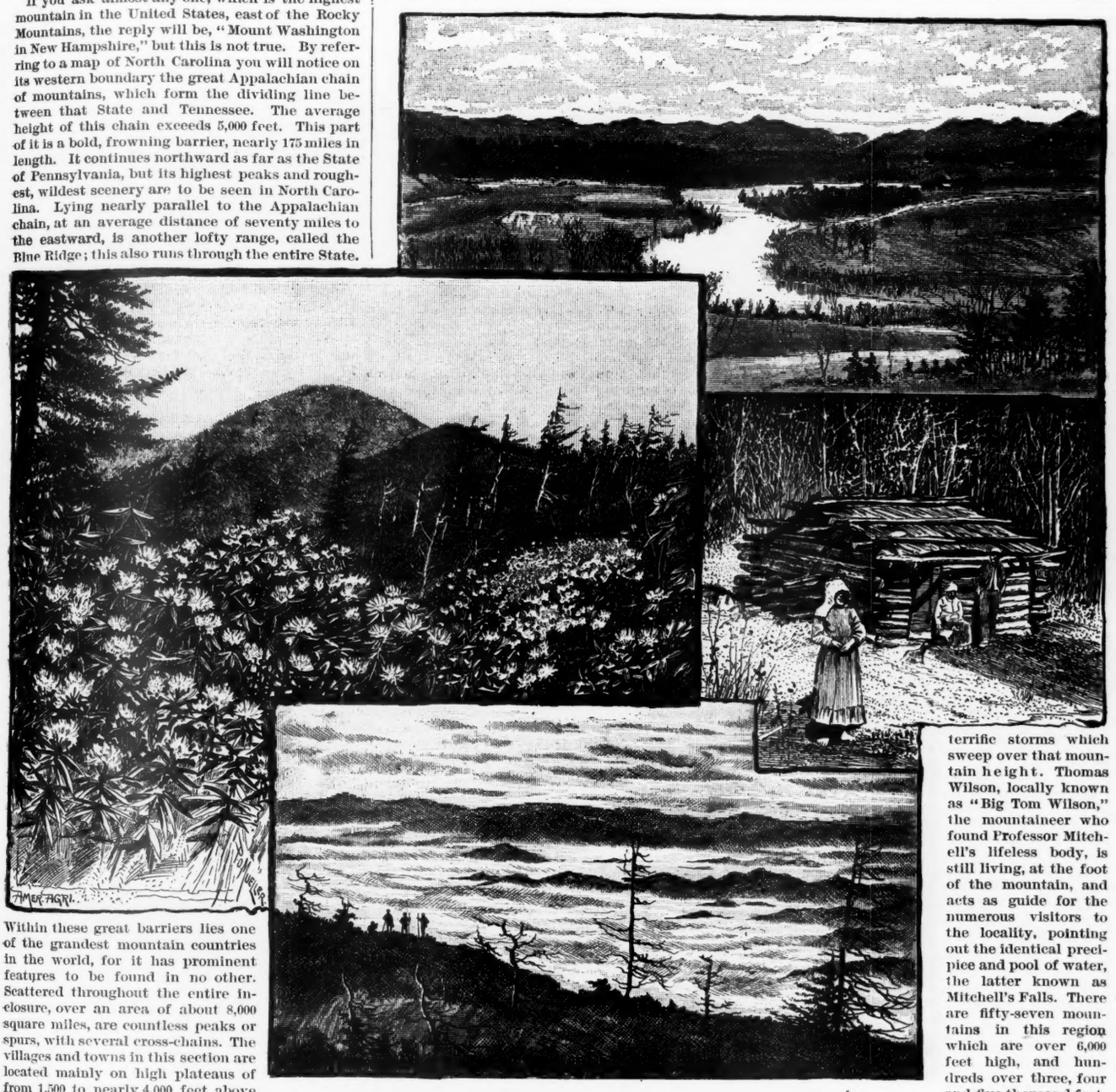
This is a matter of importance to be cared for about every farm house; but what is convenient at one house will not answer in every place. If I tell what I do with waste water it may help some one else similarly situated. The ground around the back side of my house descends toward a meadow. My milk room and kitchen and water-closet are on the second floor, and are supplied with running water from a mountain spring. The water is kept running. Traps are carefully arranged below the sinks and water-closet, to prevent a return of gases. The three outlets discharge into one four-inch pipe, into which a spare conductor from the eaves also runs. This makes a good ventilator for the large pipe, and also helps to keep the pipe clear. The large pipe is conducted down the hill a convenient distance and discharges into a long box, made of plank (single width) and partially set into the ground. The box is ten or twelve feet long and has one partition and a loose cover over all. The sewer pipe discharges continually into one end of this box, and a sediment forms; the water overflows at a notch in the top of the partition into the next compartment, more sediment is deposited, and the overflow from the other end of the box is conducted some rods farther in a ditch and distributed over the meadow, with good results.

Two or three times a year we take the cover off the box and shovel or dip the contents into a barrel set on a stone-boat and draw it off into the meadow and spread it. An old tin pail, one side of which is set into the end of a crooked stick, by the help of a saw (just as we used to make sap dippers in the woods with a large basin), makes a good dipper for the sewerage. The whole thing is very simple, effectual and durable.

The Land of the Sky.

CHARLES H. COE, NORTH CAROLINA.

If you ask almost any one, which is the highest mountain in the United States, east of the Rocky Mountains, the reply will be, "Mount Washington in New Hampshire," but this is not true. By referring to a map of North Carolina you will notice on its western boundary the great Appalachian chain of mountains, which form the dividing line between that State and Tennessee. The average height of this chain exceeds 5,000 feet. This part of it is a bold, frowning barrier, nearly 175 miles in length. It continues northward as far as the State of Pennsylvania, but its highest peaks and roughest, wildest scenery are to be seen in North Carolina. Lying nearly parallel to the Appalachian chain, at an average distance of seventy miles to the eastward, is another lofty range, called the Blue Ridge; this also runs through the entire State.



NORTH CAROLINA MOUNTAIN SCENERY.

Within these great barriers lies one of the grandest mountain countries in the world, for it has prominent features to be found in no other. Scattered throughout the entire inclosure, over an area of about 8,000 square miles, are countless peaks or spurs, with several cross-chains. The villages and towns in this section are located mainly on high plateaus of from 1,500 to nearly 4,000 feet above the sea. From any of these points one can look off on a perfect maze of mountain and valley scenery. The country has been appropriately named "The Land of the Sky." A resident there is truly among the clouds and very near, it seems, to the deep blue heavens. The highest of these mountains are believed to be the oldest in the world, for geologists agree that their upheaval occurred during the permian period of the earth's formation, and that they are the only ones which were not afterward destroyed to be reformed later on. From numerous careful examinations of the tops of all those over 6,000 feet in height, geologists have proven that they were not submerged during the glacial period.

The famous Mt. Washington, monarch of the White Mountains, is 6,285 feet above the level of the sea, but in the "Land of the Sky" there are fourteen mountains of greater altitudes than this. Their names and heights are as follows: Mount Mitchell, 6,717 feet; Guyot's Peak, or Balsam Cone, 6,671; Clingman's Dome, 6,660; Sandy Knob, 6,612; Hairy Bear, 6,597; Cat Tail Peak, 6,595; Gibbe's Peak, 6,586; Mount Alexander, 6,447; Sugar Loaf, 6,401; Potato Top, 6,393; Black Knob, 6,377; Mount Henry, 6,373; Bowler's Pyramid, 6,346; Roan Mountain, 6,318. These are the measurements of Professors Guyot and Mitchell, with the latest corrections of J. A. Holmes, of the State geological department.

It will be noticed that the highest mountain in the list is Mount Mitchell; it is 432 feet higher than Mount Washington, and every additional foot makes a great difference in altitudes. This is one of the spurs of the Blue Ridge, situated west of the main chain, in Yancey county; it was named after Professor Elisha Mitchell, a native of Connecticut, and a graduate of Yale College. Professor Mitchell accepted a call from the University of North Carolina, and "The Land of the Sky" became his adopted home. He demonstrated, as far back as 1835, that this mountain was the highest east of the Rocky Mountains. Professor Mitchell was a great lover of mountain scenery and his trips of exploration covered the entire country. On the 27th day of June, 1847, he was exploring the mountain which afterward bore his name. A heavy storm came up, and it is supposed that he lost his way while descending the mountain, and stumbled over a precipice, for his lifeless body was found several days afterward in a pool of water below. His tragic death was deeply mourned by the entire country. His body was buried at Asheville, eighteen miles distant, but a year later the remains were removed to the top of the mountain. The grave was marked by a large pile of stones, until last August, when a zinc monument was placed there by his friends. A short time since, this was blown down by the terrific storms which sweep over that mountain height. Thomas Wilson, locally known as "Big Tom Wilson," the mountaineer who found Professor Mitchell's lifeless body, is still living, at the foot of the mountain, and acts as guide for the numerous visitors to the locality, pointing out the identical precipice and pool of water, the latter known as Mitchell's Falls. There are fifty-seven mountains in this region which are over 6,000 feet high, and hundreds over three, four and five thousand feet. In every direction one can see the "everlasting hills." The scene presented from these heights is one of grandeur and sublimity. Far below in the valleys may be seen shining streams and thrifty farms, and on closer inspection of the dark gorges, beautiful falls and cascades will delight and charm the beholder. Nature surely blessed this comparatively unknown section of the Union with her richest gifts. One usually associates mountains with a rocky, barren country. With the exception of a few which front on the northwestern part of South Carolina, the mountains in "The Land of the Sky" are clothed to their very tops with a heavy forest growth of oak, chestnut, hickory, black walnut and other

valuable and useful trees, and of course the soil is deep and rich. When Jack Frost changes the forests to a flaming red and golden yellow in the fall, the mountains present a picturesque loveliness which once seen will never be effaced from the memory. This is especially true when the dark green of the balsam is mixed in with the other colors, and the whole surrounded by the azure sky. A near view also discloses the beautiful pink and white blossoms of the favorite Rhododendron, nearly every mountain having more or less of it.

No field in the United States offers a more inviting prospect to the mineralogist and collector than this mountain region. Gold, copper, lead, tin and many of the precious gems were formed and deposited during the permian period, and have been found more or less throughout the country. The beautiful hiddenite, a gem of a pale-green color, found there, has never been discovered in any other part of the world.

The valley scenery of this region is vividly depicted in the upper part of our engraving; Mount Mitchell, with Rhododendrons in the foreground, is seen in the left central picture; "Uncle Tom's Cabin," a mountain mansion, is seen at the right; and a view above the clouds is presented in the lower picture.

"How to be Happy Though Married."

ALICE CHITTENDEN.

This is a hackneyed subject, I grant you, but not more hackneyed, I am sure you will allow, than the unhappiness of homes. We are told that "God setteth the solitary in families," but surely when we look around among our friends and acquaintance we see many marriages that cannot be of Heaven's making. It takes a good deal of that charity or love that "seeketh not her own" to insure happiness in any state, and especially in the married state.

"My children," said a white-haired father, as he bade good-by to his newly-married daughter and her husband, "you will be happy just so long as you each seek the happiness of the other instead of your own." There you have the whole secret in a nutshell. "But," asks a sad-faced wife, "suppose you have always tried to make your husband happy, without having your efforts recognized or appreciated?" Then, I fear, you can only find your own happiness in the consciousness of having done your duty; and, believe me, it will be a greater and higher happiness than you can find by neglecting it for a vain search after your own pleasure. Seeking the happiness of a husband or wife does not always mean that you must bear injustice and ill-treatment in silence. Selfishness and its twin brother thoughtlessness are two of the greatest evils that married people have to contend with. If you find them to be the besetting sins of your husband, and that you cannot shame him out of them by your own generous conduct, see if his past training has not had something to do with it; don't let it run on; you will have more influence to correct it during your honeymoon than you will later. Perhaps he has been the only son of a doting and unwise mother. I once knew of such a case, where a gentleman of noble and generous impulses had had his home-life so narrowed by his early training that when he married he allowed his wife to fall into the same state of servitude that his mother had held before her. To my mind she was rather the more to be blamed of the two, only—poor woman—she erred in kindness and ignorance. Fifteen years of this servitude opened her eyes to the fact that she had been wrong, but it was too late then to repair the wrong. All unconsciously he had grown to feel a contempt for the woman who could so lavishly yield to his slightest and most unreasonable whim.

A young friend of mine without a single penny by way of a marriage portion wedded a gentleman of means somewhat older than herself. There was a true foundation of love and respect, but the husband, having been taught to believe that all women were extravagant and not to be trusted in money matters, made his wife no allowance, and exacted from her an account of all she spent. Being a woman of high and generous impulses, she could not brook this, and while yet on their honeymoon one day called him to her side and asked him to make her a regular allowance. "I want a certain sum of money that I can call my own," said this intrepid wife. "It need not be large, but if it is only five dollars a month I want it to be my very own, and I wish never to feel obliged to give you an account of it." Like a wise man as he was, he succumbed to the inevitable, made her a handsome allowance, and thus one of the worst perils of matrimony was avoided. When I commended my friend for her courage, she said: "All my life I had seen my mother suffer from this same trait in my father. A man of great generosity outside of his family, he never allowed my mother a dollar of pocket money, and when perfectly reasonable bills were presented to him for payment, there was always a scene. Had mamma taken a firm stand in the early days of her married life, we should have been a much happier family."

Don't condemn your husband as ungenerous until you have presented your reasonable requirements in the most tactful way and failed. If you do fail, in this or other matters, as I said before, resolve, God helping you, to do your own duty, and to so train your boys that your daughters-in-law shall rise up and call you blessed.

Imaginary Diseases.

WEBB DONNELL.

Some persons are continually imagining that they have this or that disease, or that they are likely to fall victims to one or another of the ills which flesh is heir to. This is particularly the case with children of a nervous, sensitive or morbid nature. The injury done by such imaginary troubles to a growing boy or girl is by no means insignificant. They derange the proper functions of the body and have a worse, and perhaps more lasting effect, upon the mind, turning it from the healthy channels in which it ought to move, and centering it morbidly upon self. The person in this condition imagines that there is some trouble with his heart or some other organ of the body, and straightway he begins to watch and exaggerate every slight pain or unusual feeling that may occur in the region where he supposes the trouble to be located. Every muscular twitch in that locality is regarded as the sure indication of disease. Unless such a condition of affairs is broken up, the whole physical and mental growth will be impaired. By taking a certain amount of care at the proper time, the trouble may be largely, if not wholly, avoided. In the first place, children ought to hear and know almost nothing of disease. Later in life the knowledge may be valuable to them, but when young their proper function in life is to grow up healthy in mind and body, and to this end the child must be cared for and watched over. A blind knowledge of the diseases incident to mankind is to him only a bugbear, not an assistance, as it may become when he is old enough to appreciate cause and effect. It is not necessary that young children should know that they have such organs as heart, lungs and kidneys. They may be taught hygiene to any extent desired, but anatomy should wait until later in life. If the trouble has already begun, the best thing to do is to lead the thoughts of the young person away from himself by getting him interested in some out-door project. It is surprising how these imaginary ills disappear when the mind has something healthy and interesting upon which to fix its attention. It may be necessary in some cases to call in a physician to set the sufferer's mind at rest, but in general it is not best to seem to recognize any reason for worriment. The mind can be easily turned into a proper channel by providing the necessary employment for it.

There is suffering enough to be endured in this world without borrowing it. A mind joyous and free from anxiety, and occupied continually in healthy directions, has a vast power in keeping the body free from disease. Such a mental condition, joined to temperate and careful habits of living, has brought thousands to a green old age.

Confidential Whispers.

Stovewood and Kisses.—There is much written about being loverlike to your wife, and the idea is a good one. But more than one wife would like to trade kisses for stovewood. Better supply her with both.

Who Needs the Spanking?—When a man says there is no use in planting shrubbery in the school house yard, because the boys will destroy it, some parents need spanking more than their boys need it.

Teach Your Children Neatness.—A disorderly, ugly, gone-to-rack school-room is a poor place in which to teach children neatness, thrift and appreciation of beauty (which is virtue),—things more important to be learned than the geographical location of Tomsk or the biography of Rameses.

Household Recipes.

Ragout of Onions.—Cut a couple of bunches of young onions in slices; add double the quantity of potatoes, peeled and sliced; season with salt and pepper, and cover with broth of any kind; simmer until the potatoes are done; add a tablespoonful of butter, and eat very hot.

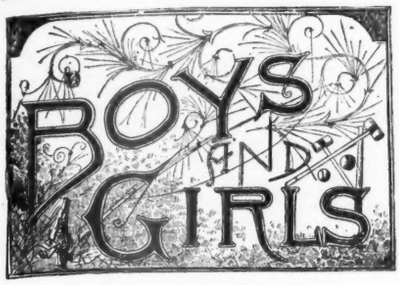
Banana Custard.—Dissolve two tablespoonfuls of cornstarch in two tablespoonfuls of cold water; add one cup of sugar and two ounces of butter; stir together in a stew-pan long enough to cook the corn starch until smooth; pour on gradually, stirring the while, a quart of boiling water; remove from the fire and add the beaten yolks of three eggs; return to the fire and stir until thick. When cold stir a pint bowlful of thinly-sliced bananas and pour all into a pretty china or glass dish. Cover with a meringue of the whites beaten to a stiff froth with half a cup of powdered sugar and the juice of half a lemon and heap on top of the custard.

Potato Chowder.—This is a nice dinner for a busy day. Cut half a pound of salt pork into thin slices and fry slowly, a very light brown; add five sliced onions, and let them color slightly; peel and slice—dropping the slices into cold water—two quarts of potatoes. Put a layer of these in a deep kettle; then a thin layer of pork and onions; season each layer with salt and pepper, and dredge with flour. When all the ingredients are used, cover with two quarts of hot water. let it come slowly to the boiling point and cook forty minutes, or until the potatoes are done. Minced parsley or young celery is a desirable addition.

English Muffins.—Scald one pint of milk, and when lukewarm stir in three cups of sifted flour and one level teaspoonful of salt; beat hard and add four ounces of melted butter, then half a cake of compressed yeast dissolved in a gill of warm water, and beat again. Let them stand covered in a warm place until very light. If wanted for tea at six o'clock, mix about half-past two. Butter some muffin rings and lay on a hot griddle; half fill with the batter and bake until brown on one side, then turn and brown on the other; remove the rings and let them remain over a slow fire for a moment or two. Tear (never cut) them open, drop in some butter, lay together and serve at once. If any are left until cold, toast and butter them.

Peach Gelatine.—Press half a can of peaches or apricots through a colander; whip a pint of cream stiff; take quarter of a box of gelatine that has been soaking in two tablespoonfuls of cold water and stir it over boiling water until it is dissolved; strain it into the puree of fruit; mix well and stand the basin—which should be a tin one—on the ice or in the snow, and stir from the bottom and sides until it begins to set and thicken, then add half of the whipped cream, mix thoroughly and set away in a mold to harden. If you dine at evening, do this in the morning, but not over night. Turn out on a pretty dish and pour the remainder of the whipped cream, which you have kept in a cool place, around the base.

Soup a la Bonne Femme, an extremely wholesome soup which deserves to be better known. Cut a good-sized onion into rounds and fry in a little butter, or fat taken from the top of soups; do not allow it to brown, and when half done add the finely-cut leaves of a tender head of lettuce and a handful of sorrel also cut small; season with pepper, salt and grated nutmeg, and keep stirring for five minutes longer. Then add half a teaspoonful of sugar and a cup of veal stock; give one boil, and keep warm until time of serving. Meanwhile prepare a dozen and a half very thin slices of bread, about an inch wide, and two inches long; dry these in the oven; free the soup from fat, if there is any on it; set it to boil; when this point is reached, remove from the fire and stir in the beaten yolk of an egg with one gill of cream or rich milk. In all cases where eggs are added to soup they must be well beaten and stirred in slowly or they will curdle.



The King of the Telephone.

ARNOLD STUART.

When the telephone was introduced at Pittsfield, a young girl named Frances Ware was appointed to take charge of the central office. She was only fifteen years old, but was large of her age and had been one of the brightest scholars in the high school. Her mother had lately died. Her father was not strong and had but a small salary, so that she bravely resolved to earn her own living.

When she applied to the agent of the telephone company for the position at the central office, he asked two prominent citizens, Mr. Larned and Mr. Peck, what they thought about her.

"She's a jewel," said Mr. Larned; "you couldn't do better."

Mr. Peck said, "If Fanny Ware is going to have the central office, you may put a telephone right into my house; I'll do that much to show how I honor a girl who means to earn her own living."

Fanny sat all day in the central office, answering inquiries and shifting the electric current from one wire to another; oftenest to the doctors' houses, the hotels, the railroad station, the stores and the woolen mills. She was always prompt and polite, and there was never a word of fault found with her by employer or customer.

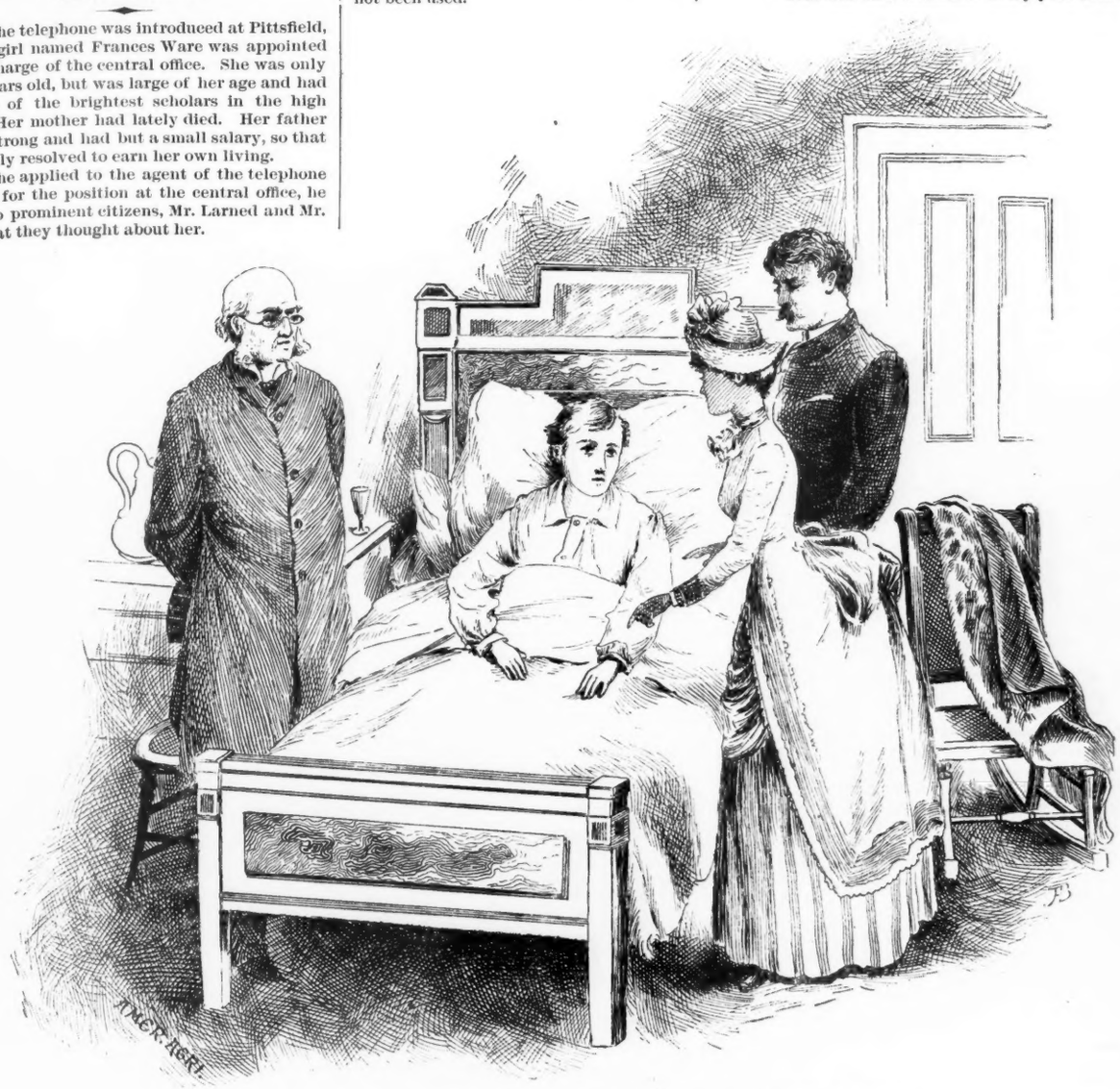
One day, however, she began to meet with a strange sort of annoyance. The Stearnsville bell rang, and a voice came as usual, "Is that you, Central?"

"Yes," replied Fanny.

"Fanny Ware, you are the nicest girl in Pittsfield," were the next words.

She had her ear to the wire expecting to hear Mr. Stearns say, "Give me Peck's mill" or "Give me the Pittsfield Bank," and when the impudent message came, "You are the nicest girl in Pittsfield," she put down the receiver and felt almost as if she had received a violent blow.

The agent of the company came in presently, and she told him about the message. He drove at once to Stearnsville to try to find out the impertinent meddler. He found in the mill office only Miss Stearns, a niece of the proprietor, who kept the books and made out the pay-roll. Miss Stearns was astonished at the agent's report. Not a person had been in the office that morning. Mr. Stearns was in New York, and the telephone had not been used.



"FANNY, I AM THE KING OF THE TELEPHONE."

"Are you sure," asked the agent, "that you have not been out of the office a little while this forenoon, just long enough for some mischievous fellow to come in and call the Central and speak to Fanny?"

"Certainly I am sure," replied Miss Stearns; "I've been waiting here all the morning to receive a telegram from Mr. Stearns saying how some wool was shipped that has not arrived."

At this moment the bell from the Central office rang, and Miss Stearns, listening, received from Fanny a telegram from New York.

"Wool shipped by Bridgeport boat.

H. STEARNS."

The agent was puzzled. He went back to Fanny and told her he could not find out anything. It was then in the middle of the afternoon. Shortly came again a signal from the Stearnsville circuit. Fanny put the receiver to her ear and heard the words, "Is that you, Central?" in what seemed to be the voice of the unaccountable intruder of the morning. She motioned to the agent to take the instrument and reply.

He put the transmitter to his lips and spoke: "Yes. What can I do for you?" No response came. After waiting awhile he rang up Stearnsville mill, and got an immediate reply-signal.

"Is that you, Miss Stearns?" he called.

"Yes," was the instant response.

"Did you call the Central a moment ago?" asked the agent.

"No," she answered, "I've not touched the wire since you were here, and I have been in the office alone all the time."

The next morning the agent took a workman with him and examined every yard of the wire to Stearnsville to see if it was crossed with any other wire, or if there had been any apparent meddling with it. Nothing wrong was found.

Meanwhile Fanny had received another shock from the Hinsdale wire. The question came in rather a gruff tone, "Is that you, Miss Ware?"

She did not recognize the voice, but fancied it must be Mr. Plunkett's.

She answered, "Yes!" Then came a strange communication:

"You shall have a million dollars and a splendid house in Lenox, and two white ponies to drive to Pittsfield, and a steam launch on Pontoosuc Lake."

"What is he talking about?" thought Fanny; "it sounds more like a fairy story than like Mr. Plunkett;" and she said through the transmitter,

"One moment, Mr. Plunkett, I don't understand you. Do you want me to send a telegram or what?"

The same voice went on:

"And a cottage on the island in the lake with a broad verandah, and a table on it, and a nice French kitchen within, where you can have the pleasantest little suppers prepared to eat on the verandah at sunset."

Fanny put down the receiver. She was puzzled. This did not seem like any message she had ever received before. She touched the call for the Plunkett Woolen Company. The return signal came.

"Was that you giving me a message just now?" asked Fanny.

"No, we haven't called," replied the book-keeper of the Plunkett Company. She then rang up Hinsdale's mill.

"Did you begin a long message a few moments ago?" she inquired.

"No, we haven't called," was the reply.

Fanny did not know what to think. It was ridiculous to suppose that the talker was other than some mischievous person bent on fooling her, yet the mystery about the matter made her very uneasy.

No further message came, and, the next morning, the agent and his man went from one end to the other of the Hinsdale wire and cross-questioned the people at Plunkett's and Hinsdale's mills, but could find out nothing.

"It must be somebody who connects with our wire by a private telephone," said the agent. "We'll set a watch for him."

He went to the trouble of placing men in ambush where they could watch every part of the wire from Pittsfield to Hinsdale and kept them on duty a week. No interloper was discovered.

During this week Fanny had plenty of time to think on the subject. It made her very unhappy to have her work interfered with. She was afraid the agent would grow tired of trying to detect her troublesome callers. Finally, she resolved to be brave the next time she should be interrupted in a strange manner, and to talk with the intruder and see if she could not find out either who it was or how the trouble could be cured.

The opportunity arrived early in the following week.

A signal came from Church's mill at Middlefield. Fanny signaled in reply and listened at the receiver for what Mr. Church was going to say. A voice she did not recognize, but which seemed to her a little like the one that had annoyed her on the Hinsdale wire, began:

"You shall go to Europe in a magnificent steam yacht."

"Stop," said Fanny through the transmitter, "who are you and why do you trouble me?"

The voice replied,

"I am the King of the Telephone, and I only tell you the beautiful things I am going to give you some day. You stop me and will not hear."

Fanny trembled. She could not comprehend in a moment what could be meant by "King of the Telephone." The strange words gave her a queer, chilly feeling.

"I don't want to have any foolish talk," said Fanny. "Won't you please go away and not trouble me any more?"

"O Fanny," said the voice, "don't you want to hear of a thousand and more beautiful things I am going to get for you; a presentation to the Queen in London, a box at the opera in Paris, and the finest dresses from Worth's, and India shawls and diamonds, and the most elegant watch with your name set in jewels on the back of it?"

Fanny put down the receiver. She thought a moment and then mustered courage to say, "Is that you, King?"

The voice replied, "Yes!"

Fanny then said earnestly, "Why will you not be a good king and go away and not trouble me any more?"

"Because you are the nicest girl in Pittsfield," answered a voice, not like the one that had just been talking, but like the one Fanny had heard from Stearnsville.

Fanny spoke again bravely: "You are not a good king, or you would not trouble me. I must earn my living here, and if you interfere I shall have to give up my place and I don't know where I can find another."

"I don't mean to trouble you," said the voice.

"But you do trouble me," answered Fanny; and burst into tears as she added, "I shall surely lose my situation."

The air was so clear and the instrument working so well that the owner of the voice probably heard Fanny's sob, for it said immediately,

"Truly, I am a good king and don't want to trouble you. What do you wish me to do?"

"I want you to go away and not speak to me ever again," said Fanny.

"I'll tell you, Fanny, what I'll do," the voice answered. "I'll go away and not speak to you again for a year, if you'll promise to let me speak to you just a year from to-day on this same wire. Will you promise?"

Fanny reflected a few moments. She believed the person, whoever it was, would keep his word, the tone of his voice was so earnest. So she spoke through the wire once more: "Yes, I will speak to you again a year from to-day, if you will not send me any signal between now and then."

"I promise," said the voice, "and I will be here a year from to-day."

Fanny had a great deal of time from day to day in which to think about the strange message she had received and the promises of so many fine things. "It's like a fairy story," she said, "only that all the things the King promised me are real things. What nice times one could have on Pontoosuc Lake with a cottage on an island, and a table on the verandah, and a little kitchen to make tea in."

She wondered what the person who called himself King was like. "Some crazy old hermit, perhaps," she said to herself. "I've heard of such people living in the mountains about here. I wonder how he contrives to speak through the wire."

Then she thought about fairy stories she had read, and she reflected, "Suppose the voice had said, 'I am a fairy,' I should have known it was nonsense. But if there were such things as fairies what pranks they might play on the telephone wires!" Then she began to picture to herself what those pranks might be, and finally said, "Why can't I write a fairy story about the telephone and send it to some children's magazine and get some money for it?"

She had a great deal of time to think about the story during the day, but she did not allow herself to write any part of it while she was on duty. She would compose a chapter in the day-time, and then, after tea, would sit down at her desk and write it out. She called the story "TICKLE-EAR."

There were a number of tiny fairies living in a great chestnut tree to which the telephone wire was fastened, where it crossed a pasture instead of keeping to the highway. The fairies wondered what the great non-conducters were when they were nailed to the tree; but when the messages began to pass along the wire it seemed to them to thunder, and they began to think they should have to move away. They talked the matter over together, and concluded to send one of their number, called Tickle-Ear, along the wire to find out what was on the end of it.

Tickle-Ear started and followed the wire until she got to the central office and found herself in the dark receiver. There she could hear the messages thundering by, but she could see nothing.

She climbed around to the outside of the receiver and suddenly got almost into the ear of the young woman who was using it. "Now," said Tickle-Ear, "I'll try to find out what they do with the big wire!" She perched just inside the ear of the young mistress of the instrument and heard all the odd messages that passed into it. She wondered whether she could not say something herself that would do some good. She was perched just within the lobe of the ear and the young woman began to hear a new voice which seemed half whispering, half singing. She could not catch any words at first, but soon she distinguished these:

"Flee, oh! flee,
From the greenwood tree!"

The voice was altogether different from any she was familiar with; it was very delicate, and fine, and musical, and the young woman could not make it out. She listened very intently and heard some strange talk.

"You shall have a ship to sail in the air, with a balloon of the finest silk to hold it up and sails of the thinnest gold and a crystal cabin."

She put down the receiver and asked herself, "What is this?" when the voice kept on.

"But flee, oh! flee,
From the greenwood tree!"

She was terrified at hearing the voice when she was not holding the receiver to her ear. She looked around the room and out of the window and could see no one. She put the receiver to her ear again and the tiny musical voice went on:

"You shall have a ballroom with marble walls and floors of the finest onyx, and a band of music with instruments of gold, but

Flee, oh! flee!
From the greenwood tree!"

"This is wonderful," she said, and she almost trembled with fear. Where could the tiny, fine musical voice come from? One thing was certain; it was bent on telling her to flee from the greenwood tree.

Tickle-Ear kept on every day teasing the young woman with the finest promises and always coming back in her talk to the greenwood tree, until at last the latter told the agent of the company about it, and he said it must mean the big tree to which they had fastened a wire where they crossed a pasture not far from town. So he told his men to put up a pole and move the wire to it. Tickle-Ear skipped back to the tree and told the company of fairies what she had heard the agent say he would do. The next day the men came and moved the wire. They said it was the strangest job they ever undertook; there was such a singing in their ears that it seemed as if they were hearing the notes of a thousand of the smallest conceivable musical instruments. One of them said it seemed to him that there was dancing going on close by, only the tread of the dancers seemed so light; but the time was kept perfectly.

Fanny made a much longer story of it than is sketched here, and wrote at the top of it, "TICKLE-EAR, a Fairy Story by F. W." She copied it off very clearly on half-sheets of note paper, and inclosed these between pieces of pasteboard to keep them flat, and mailed it with a letter to the editor of a children's magazine in New York. In about a fortnight she received a line from the editor saying that the story was accepted, and would be paid for when published. About three months afterward she saw it in print, and the same day received from the publisher of the magazine a check for twenty dollars. Probably that was the happiest day of her life.

It was just coming Christmas time, and she desired very much to buy some Christmas presents, particularly a pair of choice fur gloves for her father which she had felt she could not afford. The twenty dollars helped her to do that, and to get also some little things for herself. She took care also to put a few dollars in the savings bank. Every month she was accustomed to carry a small part of her earnings to the bank, knowing that if she should ever lose her place she might be in great need of some money for a little while.

She was so happy over her story that she almost forgave the person, whoever he was, that had given her so much anxiety. She was glad, however, that he kept his word, and she nearly forgot him as she tried to think of some new story that she could write and offer to the magazine.

Every day, as she sat before the cabinet of telephone keys, waiting to connect the different circuits as required, she tried to invent a queer plot or recall some interesting incidents that would make the next tale acceptable. It was not easy to think of anything new like the story of Tickle-Ear, but she soon began to believe that she could write a story about the girls who worked in the Pittsfield mills. She made notes of any strange things she heard about them and any of their odd sayings when they came in to send messages by telephone.

The year would be up the fifth of June, when she would have to talk with the undiscoverable interloper. All went smoothly until the first day of May. On May-day it was still the custom in Pittsfield, as it had formerly been in many parts of New England, for the boys and young men to hang baskets of flowers on the doors of the girls with whom they were acquainted, and knock and run away. There was often good sport chasing the anonymous visitor, or at least in guessing who it might be. The names of the givers were not attached to the baskets, and the guessing was sometimes right and sometimes wrong.

This year Fanny did not happen to think about May-baskets. The first day of the month was a very busy one in the telephone office, and her mind had hardly time to wander once from the keys. She went home tired and was sitting, after tea, reading the daily paper to her father, when she was startled by a loud knock at the door. She opened it and saw nobody, but there was hanging on the outside knob a basket of flowers. It was a wonderful collection of trailing arbutus, more than she had ever seen in her life, and it must have taken a very long time and careful search to get it together. She showed it to her father, and was laughing and wondering who could have left it, when she spied a card lying among the blossoms. It read, "From the King of the Telephone."

"So," she said, "it seems that the person who made me so much trouble is not an old, bearded hermit, but some young fellow about town who had nothing better to do. To think that I have promised to speak with him again next month!"

She considered a great deal what she should say to him, and asked the advice of her aunt Richards. It was agreed that she must keep her word, and that she should tell him she was sure he could not feel a disposition to make her lose her place, and ask him, as a gentleman, not to touch the wires again. Her aunt said,

"He's older now, and probably has more sense than he had a year ago."

When the morning of the fifth of June arrived

Fanny took her seat with some trepidation. Every call that came startled her and she thought must be the call she was expecting on the Middlefield wire.

As noon approached she almost began to hope that she was not going to receive the dreaded signal, when her father walked into the office, accompanied by Mr. Adams, one of the most respectable citizens of Pittsfield.

"Fanny," said her father, "you know Hal. Adams is very sick. Mr. Adams says that he has a great desire to speak a word to you. He may not get well, and I think you had better gratify him."

"I should feel very grateful if you would come to see him," said Mr. Adams. "He is very sick indeed, and he asked it as a great favor that you might be brought to his bedside for a moment."

"I will go, of course," replied Fanny. "I heard Hal. was very sick. I hope he will be better soon." Mr. Adams' carryall was at the door, and in a few minutes Fanny was standing at Hal.'s bedside with his father and Doctor Paddock. Hal. had been at the same school with her, and they had been strong competitors for the annual prizes, but had always been good friends. He was so weak that he could not put out his hand, but a smile of pleasure passed over his face, followed by a look, half of hesitation, and half of regret. "Fanny," he said faintly, "I am the King of the Telephone. I want you to forgive me for the trouble I made you." "O Hal!" replied Fanny, "it's no matter; I had no idea it was you." "You will forgive me?" he murmured. "Indeed I will," said Fanny; "now you must get well as soon as you can." He smiled good by, and when Fanny spoke with the doctor in the next room, he said Hal. was in a very critical condition. However, good nursing and a good constitution outlasted the fever, and the young man was strong enough before many weeks to call on Fanny and explain how he had been able to practice his mischief without detection. He was a good student of natural science and very ingenious with tools. He had made in his workshop a complete telephone, and, after he had tested it, had conceived the idea of connecting it with the wires Fanny superintended, and speaking to her. He threw his own wire over the company's by attaching it to a block of wood. Then he drew it tight and carried his end of it into some dense clump of bushes or behind a tree, and, listening, found he could hear what was said on the main wire. Then he boldly called the Central office in the way we have described. He was prudent enough not to practice twice on the same circuit and also not to tell anybody that he had constructed a telephone. He has since become a very expert electrician, and Fanny has become—but stop; this isn't a love story.

A New Game.

Young people who meet together for an evening's amusement are always glad to hear of any new form of entertainment. A game called "Topics" is very interesting. You can have any number of topics, the last being "Refreshments." Each person is furnished with a card on which these topics are written, and each gentleman is required to choose some lady with whom he is to converse for five minutes on each topic, selecting a different partner for each. These topics may be made as amusing or as instructive as you please, and you should be guided in your choice of them somewhat by the nature of your guests. "Woman's sphere;" "Is marriage a failure?" "The book I last read;" "What I first remember," or even "The weather," are subjects on which you may air such wit and intelligence as you possess.

Lord Beaconsfield's Flower.

It is a popular idea that the late Lord Beaconsfield was particularly devoted to primroses, and on the 18th of April, many Englishmen still wear the bright little yellow "firstling of spring" in memory of the famous statesman. The fact is, however, he cared no more for primroses than for dandelions, the gardenia, if anything, being his favorite flower; and a Mr. Escott tells us that one day, as he was strolling with Lord Beaconsfield through the lovely grounds of Hughenden, he happened to remark that the peacocks had pecked away the roots of the primroses, at which my lord said, "Yes, it is sad; but, to tell the truth, I prefer peacocks to primroses."

How, then, did the blossom come to be associated with his name? It is said to have occurred in the following manner:

On the day of Lord Beaconsfield's funeral, the Queen sent an immense wreath of primroses to be placed upon his coffin; and on a card attached she wrote, "*His* favorite flower!" This tribute of royalty with the accompanying inscription naturally attracted much attention and was the beginning of the primrose craze. But the truth was, her Majesty was not thinking about Lord Beaconsfield at all when she wrote the words, but had the Prince Consort in her mind, as he was really extremely fond of primroses, and it was his predilection she was remembering rather than that of her distinguished subject.

THE IMPENDING DOOM.

The American Wildcat.

What a demure looking little beast it is peering into the nest! Yet it is a young wildcat; and a wildcat is one of the fiercest and most untamable animals that still linger within the borders of civilization. Well may the helpless nestlings scream with fright, and the mother bird flutter in the vain effort to scare away the marauder. But he has his hungry eyes on the nest, and it will soon be left desolate. The wildcat is one of the few beasts of prey that have escaped almost total extermination in the older parts of the country. In the depths of New England swamps and the hemlock-shadowed glens of New York and Pennsylvania, wildcats still have their lairs, rear their young, nightly sally forth to prey upon any quails, grouse or small animals within their reach, or raid the neighboring farms and hen-roosts. The American wildcat is of tawny color, weighing from fifteen to eighteen pounds, and is shaped very nearly like the domestic cat, except in the matter of tail, that of the wild species having only about one-half the relative length of its domesticated relatives. There is nothing in the expression of a wildcat's face to show its savage nature. When in captivity it looks placidly out between the bars, or lies purring in its cage so quiet that no one would suspect how utterly untamable is its nature, even when taken young and treated with the greatest kindness. It is not brave, and never attacks an animal that is able to defend itself, but when cornered it will fight fiercely with teeth and claws. Terrific stories are told of encounters in barns or hen-roosts between parties of two or three wildcats and the farmers whose premises they had invaded at night. On the whole it would be a good thing for farmers if the entire race were swept off—at least in the inhabited portion of the country.

Answers to Puzzles in the May Number.

[AUTHORS' NAMES.]

1. Dryden.
2. Southey.
3. Hood.
4. Shakespeare.
5. Wordsworth.
6. Longfellow.
7. Bunyan.
8. Bacon.
9. Bryant.
10. Curtis.
11. Shelley.
12. Chatterton.

Symbolic Meaning of Precious Stones.—Diamond: Innocence; Emerald: Happiness; Ruby: Oblivion and grief; Sapphire: Repentance; Agate: Long life and health; Opal: Hope; Garnet: Fidelity to promises; Topaz: Friendship; Turquoise: Success.

FROM NEAR AND FAR.

Climate and Stock in the New Northwest.

Last June, I visited the newly opened reservation in northern Montana. Having a great desire to see it under other circumstances, I went there again early in February. Retiring for rest in a sleeping car at ten o'clock at night in northern Dakota, where snow drifts and zero weather prevailed, and awakening the next morning at daylight without any snow in sight, and the mercury so high that there could not be, was a revelation. I was curious to see the comparisons of temperature of the Milk River Valley, Montana, with that of other localities at the same hour, the reports from the signal station at Assiniboine and those at Chicago, Cleveland and St. Louis showed that for six days the temperature was higher at Assiniboine than even at St. Louis, which is 600 miles south of that place. While this is true, it must also be stated that there are occasional days in winter when it is colder in the Milk River Valley than at any of the other places named, but these periods are but brief, and those residing there state that the air is so dry at such times that the cold weather is not noticeable. The winter begins in November or December, and it lasts only six or eight weeks, and during this time there are only occasional days with the temperature down to zero or below. While our cold weather comes from the northwest, the cold temperatures in Montana are the currents from the northeast, from the Hudson Bay country, unobstructed by any range of mountains. The warm temperatures are from the west and southwest, influenced by the Japan currents of the Pacific Ocean.

I was told in Montana last year that cattle, sheep and horses subsisted on the dried and cured grasses of the lands. On this trip I saw that in reality large herds were grazing upon these apparently dead and worthless grasses, and were as fat as our June and July beeves, and the same was true of horses and sheep. Not a pound of grain was fed to them all winter, and yet they were fat. The grass grows luxuriantly during the spring months and early summer, during the rainy season, and then cures on the ground without cutting for fall and winter grazing. There are no rains to wash out and destroy its substance. And so here are the herds, flocks and horses eating it with the relish of our stock on June blue grass. Near Assiniboine, in the Milk River Valley, is a large herd on this grass alone, from which one beef per day is taken and slaughtered for the government forces at the Fort. The beef looks fat and juicy, and tastes equally well.

Rapid changes are taking place in this valley. The town of Dawes has been changed to Chinook, taking the name of the warm Pacific winds. The town site is on the railroad, and extends down to Milk River over one mile, on a pretty high piece of ground in the valley. Just across the river on the south bank is old Fort Belknap, where I was shown three acres of land which last year grew 600 bushels of Irish potatoes to the acre, by weight, and the potatoes were there to show for themselves for quality, which is as fine as are grown, chiefly the Early Rose and Burbank varieties. The bench lands to the south toward Bear Paw mountains are very rich and productive, as well as the table lands to the north, while equally rich valley lands extend farther than the eye can reach, both east and west. J, B. C., Marion Co., Ind.

Northern California.

I came to this State from Wisconsin two years ago, and like this section very well. Any Eastern people who are thinking of coming to this county—Placer—can find almost any climate they want. There are points where frost is seldom seen, and others with frost nearly every month in the year, snow in plenty and mercury below zero. It is all explained by the one word altitude. A look at the map will show that Placer county extends from near the Sacramento river to the Nevada line. At its western end the elevation is only a little over one hundred feet above the sea level, and on these plains are raised the small grains and stock. At the eastern end are the Sierra Nevada mountains, with an elevation of 7,000 to 10,000 feet. These mountains are the summer ranges for most of the stock from the valley, and here the butter is made. Lumbering also is extensively carried on.

But the best portion lies in the foot hills at 300 to 2,500 feet elevation. Here most of the fruit is grown. We raise nearly everything that is grown in the United States, but fruit is the staple; including oranges, peaches, cherries, apricots, pears, prunes, grapes, plums, figs, olives, Japanese persimmons and the small fruits.

Strange as it may seem, fruit ripens here four weeks earlier than at San Jose or Los Angeles. We pride ourselves on our market, where we can sell at the highest price for cash, all salable fruits and vegetables, with no deduction for commission. Over ten million pounds of fruit, mostly green, were shipped from this station alone last year, in full cars East, some as far as New York and Boston. Another glance at the map once more will show that we have a direct line to Chicago and twenty-four to forty hours nearer than the Southern counties. J. N. WARD, Placer Co., California.

Brazilian Flour Corn in Mississippi.

Having had practical experience with Brazilian Flour Corn, I can testify that it is not a humbug. But those living in the Northern part of the United States, who have by extravagant praise and glowing descriptions been induced to plant it, will believe that they have been imposed upon. It is a wonder to me why any one who can raise wheat successfully, should wish to raise flour corn. The product of this corn after it is ground cannot be called flour; it is very deficient in gluten, so much so that unless it is combined with from one-third to one-half of wheaten flour, it is incapable of adhering sufficiently to make either a biscuit or a pie crust. It sticks together equal to that much sand. The meal is very white and nice, and in the South, where wheat-raising is not a success, it would be economical to raise it, providing the millers would grind it; but this a great many of them will not do, as they claim that it cuts their bolting cloths all to pieces. Others grind it only on condition that wheat is brought with it, for the purpose of cleaning the bolting cloth. Besides its lack of gluten, it does not look like flour, it does not feel like flour, it does not smell like flour, it does not taste like flour; therefore, my decision is that it is not flour at all; neither can it be used as such unless it is mixed with flour. Two barrels of Brazilian corn flour combined (when used) with one barrel of wheaten flour, may be made to take the place of three barrels of wheat flour, but, in using the Brazilian corn flour as a substitute for wheat flour the flavor of the wheaten flour is entirely absent. As to its productiveness, it must be planted as thickly as any common corn, while a stalk which fails to mature two perfect ears is in this section an exception. It will yield in the South, on good land, about forty bushels per acre, but being a very soft corn, if it is blown down it rots badly. As to earliness, it takes about as long to mature as any corn we plant; for that reason I think it would prove a failure in a great portion of the North. By way of conclusion I would state that it was abundant all through this section of country a few years ago, but now it is very scarce, it has "been weighed in the balance, and found wanting."

G. H. TURNER, Lafayette Co., Mississippi.

The Land of the Boomers.

The long struggle for possession of Oklahoma ended April 22, and the throngs of settlers and boomers entered and possessed the land to which Payne had, like Moses, led his followers, and also like the great lawgiver, died without entering into it himself. The scenes which attended the settling up of Oklahoma are matters of history. In a single day a population more than sufficient to cover every available quarter section and town site poured into the Territory. The country is not all that fancy painted it. The soil is not all of it fertile, and in many parts there is a scarcity of water. On the other hand there is quite a large supply of timber, consisting of oak, pecan, cottonwood, and some evergreens. There are also decided indications of valuable mineral deposits. The river bottoms are very rich, and will in a short time yield large crops of cotton, corn, small grains and fruit of all kinds. When the Cherokee strip lying north of here to the State line of Kansas, and the Public Land or "No Man's Land" shall be fully settled up, millions will have been added to the aggregate wealth of the country.

J. B. RICHARDS, Guthrie, Oklahoma Ter.

Trees on the Dakota Prairies.

Scientists have argued pro and con. as to the why and wherefore of our treeless prairies. From seeing so many futile attempts at tree culture here, I think one can hardly be blamed for siding with those who declare that trees never did grow here. But an extended trip through the country last fall, and especially to the grounds of James Smith, of Faulk county, has abundantly proven that tree culture can be successful, if knowledge, skill and perseverance are united in the endeavor. Mr. Smith lacks less than a year of making out his four-score, but he has twenty-five acres under cultivation to trees and fruit, and is doing the greater part of the work himself, and is as enthusiastic as regards his ultimate success as though his life was all before him; and he has reason to be. His rules for successful tree growing are: First, deep and thorough cultivation of the raw prairie soil until it is thoroughly civilized; second, a selection of such varieties of trees and fruits as experience and experiment have proved adapted to our soil and climate; third, unremitting war upon all weeds, and a thorough, but consistent cultivation thereafter. These rules are few in number and short in text, but it is only by their strict observance that his efforts have met with such gratifying success. Of course he has had a life-long experience to aid him, but as he wishes success to all who love trees, his work is spread out before them, that all who run may read. We who have lived on these treeless prairies can truly admire the woodland studies of the artist, but is not he a greater artist who can cause the woodland to grow before our eyes where trees never grew before? R. G. NEWTON, Faulk Co., Dak.

"The Lazy Man's Paradise."

Louisiana is one of the richest agricultural States in the union and has been called the lazy man's paradise. The fact that so little work will suffice to eke out an existence is one reason why she has not reaped the full benefits to which her soil and climate entitle her. Nature has been more than bountiful in her gifts, but man has not profited as he should from her abundance. In no other State can horses, mules, hogs and cattle be raised as easily as here. No other State offers such land so cheap. With proper food and reasonable care the climate is as healthful as any. Every one knows that cane and cotton do well here, but they do not know that corn, oats, Irish and sweet potatoes, broom corn, peanuts, rice and hay also yield abundantly, but such is the fact. Of Irish potatoes we can raise two crops yearly; fruits do well and the woods are full of berries. The farmer can raise nearly everything his family requires, and the expenses of living are reduced to a minimum. Fine wood costs only the cutting and hauling; and if a man cannot buy shoes for his children in winter, they can go barefoot most of the time and not be alone in the practice. "Well," some one will say, "if all this be true, why don't you get along better and make a better showing?" We need some farmers in the true sense of the term—men with new ideas, improved machinery, energy and grit. I have no land for sale either as owner or agent, but no one should let the bugaboo of politics have any weight against this region. I was born in Albany, N. Y. My wife is from Bridgeport, Conn. Some of our near neighbors are from Montana, and no one interferes with us or asks about our politics or religion. Every one stands on the record he has made or is making for himself.

J. W. HILLMAN, East Baton Rouge, La.

Southern-Central Missouri.

Texas county lies about midway between Kansas City and St. Louis, and about eighty miles south of Jefferson City. Lebanon is the most important railroad town, but we have assurance of another railroad through the county soon, and it is just what is needed. The road cannot fail to be a paying one, and open up a market for our timber, of which we have a great abundance, to say nothing of its advantages for shipping stock, grain, etc. We have a fine climate here on the northern slope of the Ozark mountains. Last winter was very mild, with considerable rain. Our rivers and smaller streams flow over pebbly beds, and the water is very pure and clear. Springs of pure water gush out everywhere. The soil is good and produces corn, wheat, oats and vegetables. It is also a fine country for fruit of all kinds. A living can be made very easily here. As a general thing, the raising of hogs is a simple thing, as they live and fatten on mast, which rarely fails. When a farmer can round up his hogs and pick out a carload that will average something near 250 pounds each, to which he has never fed an ear of corn, there is profit in it. This is also a good section for cattle and sheep, there being abundance of outrange and natural shelter. The country is set-

tling up rapidly. What we want are enterprising, go-ahead, bona fide settlers. The greater part of the unimproved land is owned by speculators, who hold it at from two dollars to five dollars per acre. Improved farms range from ten dollars to twenty-five dollars per acre.

LISTON DENNIS, Texas Co., Missouri.

The Shores of Puget Sound.

The many advantages possessed by the Puget Sound region for those of limited means but desiring to engage in farming or the cultivation of fruit are, to a large extent, unknown. In this region several conditions combine to attract the immigrant of limited means. First: It is one of the most healthful sections of the United States. Second: The hard, cold winters of the East are unknown here. Third: Timber for building and fuel are in almost unlimited quantities. A large proportion of the recent settlers pay out nothing for lumber for their houses, barns, fences, etc. They cost only their own labor in cutting and riving out from the cedar indigenous here. Fourth: Certainty of crops; a failure never occurring as a result of climatic influences. Fifth: The extraordinary productiveness of our river delta land. In the district in which the writer of this is located,—on the delta of the Skagit river,—one hundred bushels per acre is the common yield of the oat crop; and some fields of eighty acres each last season turned out at the rate of one hundred and fifty bushels per acre. Five tons of cured timothy hay at a cutting is a common yield. Oats and hay are the two staple crops of the richest alluvial lands here.

Half a mile or so from the river the soil is more sandy, though alluvial and a mixture of clay, sand and other sediment in its character. It is better suited for mixed farming, fruit-growing, etc. Such soils produce five tons of clover hay per acre in two cuttings; or forty to sixty bushels of English beans, planted in February or March, as first crop, to be succeeded by rutabagas sowed the last of June and producing 600 bushels or more per acre. On this soil carrots produce thirty to forty tons per acre.

The small farmer having but a few acres of arable land can grow stock, finding plenty of summer pasturage often in commons outside of his own land, and can supplement the pasturage with oat straw, the production of thousands of acres, which he can obtain for the hauling away. Such straw, fresh and bright from the thresher, fed to cattle in connection with the roots and crushed beans, forms an excellent food, upon which in our mild climate stock will thrive and fatten. Shelter is required only from the rains of winter. A good cow brings fifty dollars to eighty dollars, and steers trained to the yoke twice that sum. These have been the prices for the past ten years, which is as far back as the experience of the writer extends.

Ten acres of such land, perhaps all a small farmer wants or needs, right on the banks of the river and on a road good in summer and winter—our rainy season—and within a mile of town with schools, churches, steamer landing, etc., can be bought even yet, though advancing rapidly in value, for three hundred dollars or four hundred dollars, unimproved, of course.

J. F. CASS, Skagit Co., Wash. Ter.

East Tennessee for Farmers.

I came here two and a half years ago, with small means, from Northwestern Ohio, and profited by the change. The climate is as healthful as any on the continent, having neither the extremes of heat nor of cold common further North. We can have ten months of pasturage in the year by proper care. All the farm crops of the Northern States flourish here; wheat and clover doing peculiarly well. Fruit of all kinds flourish and yield largely, while for dairying and stock raising the soil and climate are well adapted. The cotton country south of us furnishes an unfailing market for all our surplus produce, and we are so near to it that transportation charges are light. The face of the country is rolling and naturally fertile, and while worn down as a large part of it is by injudicious farming, it is easily reclaimed by thorough tillage and manure. When I came here I purchased a farm of 213 acres for $2,500, and have since harvest last year refused $6,000 for it. Land ranges in price from five to fifty dollars per acre, according to location; hundreds of men on the high priced lands of the North would be able to buy one hundred acres here for what ten acres will cost there, and be benefited in health by the change. I have only taken the AMERICAN AGRICULTURIST a short time, but I hope never to be without it again, as it surpasses all other farm journals in real merit. E. L. GRIFFIN, Tenn.

Cocoanut Growing in Florida.

Since the great Disston enterprise of draining the low lands of south and southeastern Florida proved a success, hundreds of acres of reclaimed land have been taken up by settlers and planted with the tropical fruits, such as the pineapple, lemon, banana, lime and cocoanut. The low lake-border soils are composed of humus, with a small percentage of sand and disintegrated marine deposits, underlaid by a stratum of shell marl, and the whole resting upon a limestone formation. But along the coast line the prevailing type of country is a low, sandy plain, where the cocoanut grows with little or no care. Already the coast line of Monroe county, and the islands adjoining it, are covered with vast cocoanut groves, extending in one irregular line from Charlotte Harbor to the Keys, 300 miles south. Nature has done her part in this section of the country, and human energy bids fair to transform this whole wilderness into a tropical garden within a few years. Bearing cocoanut groves are found all over the country, and those who own the trees express their satisfaction with the new industry. The cultivation of cocoanuts for market, like that of pineapples, is still in its infancy in Florida; but it is progressing so rapidly that it is estimated that there will be nearly 500,000 trees planted by the end of the present season. Hundreds of homesteads have been taken up on Sanibel Island this year, and nearly every one planted with cocoanut groves. The other large groves are at Horseman's Key, Caximbas, Biscayne, Horr's Island, Pine Island, Marco, Fort Myers and Charlotte Harbor.

It is admitted by all of these growers, who have experimented with the tree, that the cocoanut does best on a moist, sandy soil, near salt water, but it can be raised on land removed from the coast if salt is applied to the ground around the trees after they become three years old. In planting the ripe nuts they should be placed about four inches under the soil and about twenty feet apart. The stem end of the nut should be planted downward so that the milk inside of the nut will cover the eye and germinate the young sprout. The tree should make its appearance above ground in six to ten months after planting. For the first three years the trees as far north as Manatee county have to be protected from frost, but south of that line there is not much danger. The profit on one tree is from two to four dollars per annum, and one hundred trees are planted to the acre. In from six to eight years the trees come into bearing. This profit does not seem to compare very favorably with the fabulous gains that have been made from orange groves. But the profits of orange groves are not what they were ten years ago. Competition has put the prices down, and nothing but the choicest varieties bring the fancy prices that are quoted now and then in the markets. To raise choice oranges a great deal of expense in the way of cultivation and fertilizers is required, which reduces the profits very naturally. With a cocoanut grove it is far different. No fertilizer is required; little or no cultivation is necessary, and no expense is attached to the work except the buying of the land, planting the nuts, trimming out the trees occasionally and picking and shipping the nuts.

GEORGE E. WALSH, Polk Co., Fla.

Tree Planting in Minnesota.

There ought to be a forestry school in every State to teach the farmers the value of trees for ornament, shade and shelter. The trees best adapted for this climate are box elder, European larch, silver maple, catalpa, black or yellow locust, osage orange, honey locust and Russian mulberry. The latter as an ornamental or useful tree is of great value, being a rapid grower, hardy, and very beautiful. It commences to bear when two years old, and bears every year fine, rich fruit. Its foliage is dense, large and luxuriant, deep-glowing green. I believe the Russian mulberry tree when known will take a prominent place for timber, on the tree claims, as well as ornamental plantations; its rapid growth will quickly protect buildings, newly set forest trees, and the garden from prairie storms. Plant them four feet apart. If your farm is eighty acres it would be 5,250 feet in circumference; the mulberry tree should be planted early in the spring before the buds start.

T. O. MARING, Rice Co., Minn.

Large Farms in California.

I often notice in these columns articles about large farms, but the largest one in the State is owned by Messrs. Miller & Lux, wholesale butchers and stock-raisers. They are reported to have one hundred and thirty thousand head of sheep, seventy-five thousand head of cattle, fifteen thousand saddle and work horses, besides a large number of hogs. They butcher daily seventy-five head of cattle, from three to four hundred sheep, and about fifty hogs. One of their farms, of about seven hundred thousand acres, lies in the counties of Stanislaus, Merced and Fresno. They harvest one hundred and twenty thousand bushels of wheat and barley, and cut thirty to forty thousand tons of hay—mostly alfalfa. All the business is looked after by Mr. Miller personally. Mr. Lux died several years ago. The hay is measured and sixty four cubic feet are computed as a ton. This is fed to stock. The beeves are fattened in winter by cutting the hay and mixing it with ground barley, beet pulp, oil cake and bran, and feeding in mangers. This farm is all under fine board and wire fences, cut into pieces varying from a quarter section to three or four sections each. At intervals are nice buildings. It is managed by different superintendents, yet it is all under one fence and owned by one firm. They have extensive quarters for the accommodation of their help, barns for their working stock, and orchards and vineyards at each place. The owners keep their own mechanics, blacksmiths, harness makers, engineers and book-keepers; also stores of merchandise for sale to their men. They drive and ship cattle from Oregon, Nevada and Arizona, and are now opening a large tract of land in Kern county. They will offer for sale in small lots some forty-five thousand acres of what is known as tule or swamp land. All land here has to be irrigated once a year. Land can be bought at from five to one hundred and fifty dollars per acre, according to location. The crops raised are wheat, barley, oats, corn, sorghum, potatoes — Irish and sweet — pumpkins, melons, berries, and all kinds of fruit, including figs and olives. Tobacco grows very well, but, like cotton, has not yet been largely cultivated. Hops are quite extensively raised. Fruits are the favorite crop, and the soil and climate seem peculiarly well adapted to their culture; grapes, both for raisins and wine, are increasing yearly in the amount cultivated. Plenty of water to irrigate is taken from the many mountain streams which find their way through the fertile valley and make many a farmyard beautiful, as well as fertilizing the farm and orchard. T. E. BROWN, Kern Co., California.

It Brings Recollections of the Early Home.

A recent number of the AMERICAN AGRICULTURIST just received, makes my mind run back to my native home on the Delaware river, and I a boy, with my father, and the old AGRICULTURIST. I used to read it always with interest; my father must have been one of its first patrons. Ah! the changes a lifetime brings; and what improved methods in farming! How well I remember our old homestead farm of river-washed sand, and how careful we were in saving the manure, and the ashes of the "great fireplace." Day after day my little legs were made tired, tramping along the corn rows, applying the ashes, a table-spoonful or two to each hill of corn, and though but a child, my interest was very lively in watching the results of that application. How quickly those tiny spears of corn used to respond to that light application of wood ashes, which was put on so sparingly. Now I am here in Florida, yet using ashes, not on corn, but to fertilize orange, peach and other trees; the soil is sand, much of it yet more lacking in plant life than our old farm on Delaware river. Our climate here is so kind, though, to vegetable as well as animal life, that their rapid growth is simply surprising to strangers visiting us.

Our orange trees are a sight, laden with bloom as I have never seen them before, filling the whole atmosphere about us with their pleasant aroma.

JAMES MOTT, Orange Co., Fla.

The Best Paper.—I am on my second year with the AMERICAN AGRICULTURIST, and consider it the best paper of its kind published anywhere.

JAMES WINSLOW, Crawford Co., Pa.

OUR BASKET

Drilling in Fertilizers with Oats.—A. C. Jackson, Monroe Co., Ga., writes: "I was much interested in reading Mr. Joseph Harris's article on oats in the March number of the AMERICAN AGRICULTURIST, but am surprised that he drills in nitrate with the seed. Here the spring rains are so copious that the nitrate would probably be leached out of the soil before the plants were large enough to use it." Mr. Harris lives near Rochester, N. Y., and finds from long experience that it is a rare thing to have a rain, from the time oats are sown till the following December, sufficiently copious to start the underdrains, and he thinks justly that if no water passes off no nitrates are lost from leaching. According to the last Bulletin of the Georgia Experiment Station the amount of rain that fell last year at Athens, Ga., was in round numbers: April, 2 inches; May, 5¾ inches; June, 4¾ inches; July, 5¾ inches; August, 5½ inches; September, 5½ inches. The maximum temperature was: April, 85°; May, 92°; June, 97°; July, 100°; August, 99°; September, 95°. The number of days on which rain fell was: April, 5; May, 10; June, 10; July, 8; August, 9; September, 6. From this it is evident that when it rains in Georgia, it rains. But considering the temperature it is evident that evaporation would carry off a large proportion of the rain, and we think it may be found that there is not so much danger of nitrates being washed out of the soil in April and May as might be supposed. On rich land vegetation must be rampant and the rapid growth would hold the nitrates. The Georgia Experiment Station will doubtless soon give us further information on this important point.

Wyoming is brimful of enterprise. Besides the $100 addition to the AMERICAN AGRICULTURIST prize list, the *Cheyenne Daily Leader*, the *Big Horn Sentinel* and the *Buffalo Echo* have made especial supplementary offers. Still further financial inducements are offered by C. P. Osgan, a public-spirited citizen of Cheyenne. Our Western friends fully realize that if the prize crops are grown in Wyoming, the value of this fact as an advertisement of the Territory will far exceed the prizes offered.

Corn for Silage.—Bulletin 4 of Cornell Experiment Station is replete with significant facts regarding the cultivation of corn for fodder and silage. Six plats were seeded with Sibley's Pride of the North, a yellow dent corn, and two with eight-rowed flint. The best results were secured from the former in drills, three feet apart, thoroughly harrowed, and cut when the ears were glazed. Taking the corn planted in drills as a standard, there was a falling off of thirteen per cent in the case of corn planted in hills; forty per cent in the case of corn sown broadcast and not cultivated; and twenty-nine per cent in the corn sown broadcast and afterward harrowed. There was also a difference of ten per cent in favor of Sibley's Pride of the North, compared with eight-rowed flint. The bulletin has an illustration showing the comparative height of corn grown properly and that sown broadcast, the lesson of which is that good culture as above described is profitable, while there is worse than total loss under the improper condition of careless farming. The larger varieties of fodder corn cannot be depended upon to produce ears, in the latitude of New York State except in a few rich valleys and river bottoms.

Will it Pay to Raise Currants?—C. L. Comstock, Dearborn Co., Ind., asks if there is a steady demand for currants in our large markets, and the average price. Also is the market ever glutted, and how long does it take the plants to come into full bearing? We have set out several thousand three-years-old currants and got a fair crop the second year, and a large crop the third year. Two-year-old plants are usually set out, and these should bear nearly as well the second and third year. Much depends on cultivation and manuring. The canning establishments that make jelly pay four and sometimes five cents a pound for good common red currants, such as the Red Dutch or Victoria. They do not like the cherry currant. It costs about one cent per pound to pick them. If the crop is good, an active girl will pick 100 pounds a day and occasionally 125 pounds. Many bushes average about five pounds each. If planted six feet by three there are 2420 bushes per acre. To get this average you must keep the land clear, manure liberally and keep off the caterpillars by prompt and repeated dustings of white Hellebore. The large markets are frequently glutted with inferior fruit, and when this is the case the price of the good currants leaves very little profit to the grower. On the whole, however, the crop is a profitable one. In many local markets the price is often eight and ten cents a pound for large currants.

Sale of Prince Wilkes.—The trotting gelding Prince Wilkes has been sold for $30,000, and shipped out of the country. Prince Wilkes was foaled April 28, 1881, near Danville, Ky. His sire was Red Wilkes by George Wilkes; his dam Rose Chief by Brown Chief, a grandson of Blood's Blackhawk, a direct descendant of Justin Morgan, through old Vermont Blackhawk. The dam of Red Wilkes was Queen Dido by Mambrino Chief, the sire of Mambrino Patchen and Lady Thorne. Prince Wilkes was bought when a weanling by George A. Singerly of Philadelphia, who retained him up to the recent sale; the horse has been kept in his native State. He entered the public trotting ring when four years old, and up to the close of last season went in twenty-one races, of which he won all but three. His best time was 2.16, which record he made at Lexington, Ky., in 1887.

Fertilizers for Celery.—Bark Moyer, Noble Co., Ind., proposes to plant five or six acres of celery, and asks what fertilizers he shall use. "The soil is muck, about three feet deep on a bed of marl. It is three feet above the level of a lake, and is well drained. It was plowed two years ago this summer and harrowed five or six times that fall, and the following spring was harrowed with an Acme harrow as deep as possible and planted to corn, and got a good crop." This year he proposes to plant it to celery and use fertilizers. That is right. We planted just such a piece to celery last year, and on part of it used superphosphate at the rate of three hundred pounds per acre, and found good returns from it. Nitrate of soda and superphosphate in equal parts is still better, but it is quite probable that if the muck is well drained it may be rich enough in nitrogen to grow celery for several years by the mere use of superphosphate. Mark out the rows, scatter the superphosphate or nitrate and superphosphate along the rows, and work them in with a narrow one-horse cultivator. We usually take off all the teeth but one and let it run deep, and go back and forth in the row where the plants are to be set out. It not only mixes the fertilizers with the soil, but makes the soil so mellow that it is easy planting. In setting out the plants, press the soil firmly around the roots. Keep the ground thoroughly cultivated between the rows, and pull up soil enough to the plants, as they grow, to smother the weeds in the rows, and you are almost certain of a good crop of celery.

Pea-Vine Silage.—A Long Island truck farmer asks whether pea-vines from which the pods have been picked for market are suitable for silage. They make excellent silage, and, fed in connection with that from corn, it is a better-balanced ration than either kind alone. But a ton of silage is contained in about fifty cubic feet, and it takes a quite large area of pea-vines to fill even a moderate-sized silo. However, some truck farms have fifty acres or more of peas, and in such instances there would be no difficulty. The pea-vines may be packed into the silo without running through the cutter.

A Town Lot Farmer.—A subscriber in Clinton Co., Ill., writes that the village and suburban readers of the AMERICAN AGRICULTURIST may be interested in what he has put into his two town lots in the way of fruit, leaving still room for a garden. "In the first place, my house is 32x32 feet, with a lawn 60x30 feet; there is a space in front of the house 60x20 feet of lawn and flower beds, a wood house and yard 30x12 feet and a chicken house and yard about 50x30 feet. I have about 300 strawberry plants, a 60-foot row of Cuthbert raspberries, fifteen Snyder blackberries, eight apples, eleven peach, three plum, five pear, five apricot and four cherry trees, ten grape, fifteen currants, thirty feet of gooseberries, and still have room for garden sauce, as none of the trees are over four years old. Last summer I had more peaches and grapes than I could use, and plenty of strawberries too. The other trees have not yet begun to bear, but I soon expect to be able to eat my fruit fresh from the tree, which, to my notion, is the best way."

Fertilizers for Plants in Pots.—N. W. Lee, McLean Co., Pa., writes that he wants to use nitrate of soda and superphosphate on general stock of greenhouse plants, and asks: "How shall I use it to get quick results, and how often?" Put a tablespoonful of superphosphate in a gallon of water, stir it up, and give each four-inch pot half a pint, or for a six-inch pot a pint. The superphosphate will not all dissolve in the water, and it cannot be applied with a hose. Neither is it desirable to do so, as a strong solution might injure delicate leaves. Nitrate of soda is entirely soluble in water. Put a teaspoonful to a gallon of water. Give each plant from half a pint to a pint of the solution. In bright, sunny weather repeat the application in two or three days, and then wait a week and give more. With such a weak solution there is no sort of danger. Outdoor plants may be watered in the same way, but they will stand larger but not stronger applications.

Don't Smoke While Milking.—No matter how cleanly the business is otherwise conducted, if the milker continues to smoke while milking, the milk and its products will be tainted with the odor and flavor of tobacco. Nothing is more sensitive to outside odors than milk, cream and butter, and the air of any place where milking is conducted must be kept pure.

Poor Pastures on Sandy Land.—S. H. Messick, Sussex Co., Del., writes us that the pastures on light, sandy loam in Delaware are frequently almost bare during summer, the clover and grasses not attaining much height during the year. The reason probably is that the *surface soil* is poor and easily affected by drought. It would be well to try alfalfa or other deep-rooted plants, that would get their moisture and plant food from the subsoil and leave a good portion of it near the surface. In the mild climate of Delaware it ought to do well.

Japanese Buckwheat.—M. H. C., Huron Co., Ohio, says he raised the Japanese buckwheat last year, and is much pleased with it. "It attracted much notice," he writes, "and everybody likes it."

Bordeaux Mixture.—Alex. Baker, Essex Co., N. J.: The original formula of the Bordeaux Mixture, which has been so successfully used against black rot in grapes, is as follows: Dissolve sixteen pounds of sulphate of copper in twenty-two gallons of water; in another vessel slake thirty pounds of lime in six gallons of water. When the latter mixture is cooled it is slowly poured into the copper solution, care being taken to mix the fluids thoroughly by constant stirring. It is well to have this compound prepared some days before it is required for use. It should be well stirred before applying.

The Farmers' Alliance in the South.—W. R. B.: There are Farmers' Alliances in nearly all the Southern States, including Virginia. You can obtain all the information you wish about these Alliances from August Post, secretary of the National Farmers' Alliance, Moulton, Ia.

English Methods of Feeding Ducks.—A successful duck fancier in England always gives the young ducks hard-boiled eggs at first, with coarse oat meal, and rye boiled so as to remain in the whole grain. They have skim-milk to drink and the food is mixed with it. This feeding continues for the first fortnight, after which wheat sharps, corn meal and a little locust bean meal is given, mixed with either boiled potatoes or sweet turnips, and having a liberal quantity of mutton or beef tallow cooked with them. The meals are mixed in while the liquor is boiling hot, as this scalds the meal, assists digestion and prevents diarrhea. Whole or cooked Indian corn is fed later on and varied with buckwheat and rice. The great secret in rearing ducklings consists not in the actual

quantity of food given at once, but in giving only what they can eat up quickly. This should be given often—seven or eight times a day for the first fortnight, commencing early in the morning and feeding as late as nine or ten in the evening. An important point also is a change in the food at different meals during the day. The frequency of feeding should be decreased gradually so that at six weeks old only three meals a day are given. This should be the limit until they are sent to market, which should be at ten weeks and not a day later, as after this period one will have to feed for pin-feathers for four or five weeks before they will be again in a condition to kill. Barley is held to be bad for young ducklings, as it neither fattens nor produces quick growth. The ducklings should ordinarily be kept warm for the first two or three weeks, but not as warm as chickens, after which they require only to be kept clean and dry. Change the bedding often so that they will not be resting on damp and cold, and keep them out of the rain until their feathers are well out.

Now Watch the Grapevine.—As soon as the buds open, a little caterpillar will be found to have drawn the leaves together by its nest, thus protecting it from liquid applications. Hand-picking is the most effective remedy. When the grape is in flower the rose-bug sometimes attacks the flowers in great numbers. This insect passes for an "iron clad," so far as insecticides are concerned. They readily let go their hold if the vine is jarred or shaken. They may thus be caught in a vessel containing a little water and then destroyed.

Prof. E. S. Goff, one of our esteemed contributors, has resigned his position as Horticulturist to the New York Agricultural Experiment Station, to accept the Chair of Horticulture in the University of Wisconsin.

Who Has the Best Chance?—S. C. Buncine of Grove City, Ill., fears that truck farmers, having but an acre or two, and that very rich, will plant every square foot of the ground, and cultivate the entire crop with the hoe, thus lessening the chance of larger farmers who will cultivate a crop in competition for the prize in the common way. It is doubtful whether this extremely close planting would result in even an average crop. It is the experience of most planters, that when the hills are too near together, nothing but stover results.

Plums.—Some raise the choicest plums and find them profitable, but it is done only by shaking or jarring the trees daily, catching the curculio on a cloth and killing him. There is no such thing as a "curculio-proof" plum, tree-venders to the contrary notwithstanding.

Boys on the Farm.—In much of the work on a farm a willing boy of 14 to 16 years of age can do almost as much work as a man; but farmers, as a rule, "do not want to bother with boys," and if they engage them they are made to feel that they are boys, by the treatment they get. If there is a choice in implements, the new one is given to the man, while the old and disabled one is good enough for the boy. The best horse, of course, goes with the best implement, and so on through the details of the farm work.

Everlastings is the name given to a number of different flowers that retain their form and color when dried. They will be in demand for Christmas decoration. *Helichrysum* is one of the best. It comes in various colors. See seed catalogues. Give plants an abundance of room, to allow them to branch freely.

New Langshan Catalogue.—The American Langshan Club will issue another large catalogue, and it is desirable to have the name and address of every one who is in any way interested in the breed. Every such one should send his name and address to A. A. Halliday, Bellows Falls, Vt., who is secretary of the club.

Bran for Cabbage Worms.—S. D. Webster, St. Louis Co., Mo., writes us that he has been successful in clearing worms from his cabbages by dusting them freely with bran. He was induced to substitute shipstuff, but found it no better than the bran.

The Pear Slug.—This is really a caterpillar, though resembling a slug in appearance and in its slimy character. It is also found upon cherry trees, and is the larva of small black fly, *Selandria Cerasi*. The slug eats all the soft parts from the leaves, leaving only the frame-work of fibers. It is often very destructive to young trees and to nursery stocks. Dry earth, thrown into the tree, by adhering to the slime will kill it. Fine and dry slaked lime, or ashes sifted from a bag tied to a pole, is more efficacious than dry earth.

Canada Thistles.—O. Brainard, Jackson Co., Ill., writes us that he makes sure work of eradicating Canada thistles by plowing them out "in the last quarter of the moon during the summer months." There is no doubt that persistent and thorough uprooting while in full growth will destroy Canada thistles, whatever may be the moon's phases.

To Prevent Kicking.—Elihu Flower, Bennington Co., Vermont, writes us that a good method to keep a cow from kicking is to bend one of her forelegs at the knee and buckle a strap around it above the joint. This holds up that foot, leaving her only three to stand on and none to spare for kicking.

Currant Worms.—If holes are seen in the young currant or gooseberry leaves, the presence of the worm may be suspected, and it should be looked for. If found, no time should be lost in destroying it, for it will soon completely strip the leaves from the bushes. Powdered white Hellebore is an effective remedy, which may be obtained pure at first-class drug stores. It is often advised to dust the bushes with the powder, but the slightest quantity of the dust causes such violent sneezing that it is much safer to apply it with water. An ounce of the powder to a pailful of water is sufficient. We find that the powder mixes with the water more readily, if it first be melted with a little boiling water and then fill up the pail with cold water. Apply with a garden syringe, endeavoring to wet the under sides of the leaves as much as possible. It may be necessary to repeat the application after three or four days, as a fresh lot of worms may hatch out.

Egg Plants.—Put out when hot weather has come to stay. Give plenty of manure, and put straw or a shingle under the fruit to keep it from the ground.

Tame Grasses for British Columbia.—A subscriber at Kamloops, British Columbia, writes that he has tried unavailingly to find "a grass that will grow on our bunch grass ranges. I can get plenty of grasses that will stand the drought (for instance, the Bermuda grass), but none that will stand both drought and frost. Our winters range from 20° to 40°, according to the altitude, and very little snow falls. The snow not being heavy leaves the ground bare at times, and then clovers and alfalfa on the cultivated fields freeze out. Of course neither clover nor alfalfa will grow on our ranges." We are sorry that we cannot aid our correspondent. All the common grasses and clovers have been tried, but none has been found that thrives well and is profitable to sow. But the case would not seem to be hopeless, as Directer Grimme of the Oregon Experiment Station states that he has known of excellent crops of wheat being grown on this bunch grass land with once plowing.

Spring Bulbs.—Hyacinths, tulips, and other spring-flowering bulbs should not be taken up before the leaves fade; then the bulbs may be lifted and placed in a cool, airy room—their labels with them—and where mice cannot get at them, until time for planting in fall.

A Home-Made Binder for the American Agriculturist.—George Dunn, Nattoway Co., Va.: A cheap binder for the AMERICAN AGRICULTURIST can readily be made of rough cardboard, or even what is called strawboard, to be found in almost any country store. Cut the strawboard about an inch longer than the page of the AMERICAN AGRICULTURIST, and the exact width. Two of the thick sheets of board for each side, and for a back use thin leather or canvas, a strip two or three inches wide and the length of your proposed binder will be about right. Now glue the edges of the cloth or leather back between the two sheets of board used for the sides, leaving a space of about one-and-a-half-inches between the edges of your four side pieces—and this will allow room to fold around the back of the twelve numbers when all are in place. When the glue is dry, take out of the press and cover the outside of the binder with any fancy paper or even thin colored muslin, turning the edges over the end and sides, after which paste a sheet of white paper over the inside. Three short cords may be fastened to one of the covers near the back, with which to tie in the monthly numbers as received. If you are possessed of the requsite skill for making such articles you will find no difficulty in constructing a neat and convenient binder that should not cost you more than ten to twenty cents for the material.

Cost of Fertilizers.—In buying concentrated fertilizers for top-dressing growing crops, it is in most cases better and cheaper to purchase special articles than to obtain the same manurial elements in a more general way. The average cost of sixty-eight nitrogenous superphosphates as given by the Connecticut experiment station, Prof. S. W. Johnson director, is $34.55 per ton, and the cost $28.70, an advance of 20.30 per cent on costs. In the same manner an advance of 16.10 per cent over cost of materials is made by manufacturers on special crop manures. Compared with these figures the Mapes special crop manures, as reported by the experiment stations of Connecticut, Massachusetts, New York and Pennsylvania, net the manufacturers but 10.13 per cent above cost. While the farmer pays 20 per cent advance on cost of stock for ammoniated superphosphates and 16.10 per cent for special crop manures, he pays only a little over 10 per cent advance on the cost of raw materials for the Mapes fertilizers. This profit has to pay all the costs in running the business.

A Friend, Not a Foe.—B. F. M., Jefferson Co., Ky.: The large grayish masses of eggs an inch long and nearly half an inch in diameter which you found glued to the twigs of your fruit trees are those of the *Mantis Carolina*, an insect with many local names, such as camel cricket, devil's riding horse, praying mantis, etc. The full-grown insect is two or more inches in length, with a rather long and slender body, and of a pale olive green color. Their front legs are large and powerful, for it is with these they grasp and hold their prey. When at rest the head and front part of the body is considerably elevated, the attitude no doubt suggesting some of the common names of this insect, although it is incapable of harming any one, however frequently or roughly handled. This species of mantis is a veritable friend of the farmer and fruit grower, and its presence should be encouraged because it feeds upon grasshoppers, crickets, caterpillars of various kinds, and sometimes attacks the Colorado potato beetle. It is such a voracious cannibal that it will often devour its own kind when pressed for food.

Amaryllis Fiber.—E. J. Jakel, Madison Co., Fla.: The fiber which you obtained from the leaves of some species of amaryllis is certainly very fine and strong, but it would probably cost more to extract it from the leaves than it would be worth when brought into competition with other and better-known kinds. There are a large number of plants belonging to the amaryllis family which yield valuable fibers that have long been known in commerce. Among the most noted of these we may name the agaves (century plants), for there are several species of this genus that yield a large amount of fiber used for cordage cloth and paper. In the Central American States and in Mexico extracting the fiber from agave leaves is an extensive industry and will doubtless be largely increased in years to come, when suitable machinery is introduced to take the place of hand labor now principally employed in removing the pulpy mass which encloses the fiber in the freshly-gathered leaves.

Rose Bugs.—J. Glenn Cook, Baltimore Co., Md.: No effective method of fighting rose bugs has been found except hand picking. Arsenical poisons, kerosene emulsions, pyrethrum powder, and all the usual insecticides have proved powerless against this sturdy pest, which defies everything except actual capture by hand.

Lime and Salt for Grass.—W. Clark, Wake Co., N. C., asks, "How will thirty bushels of oyster shell lime and five bushels of salt (in which meat has been packed) per acre pay on grass?" They will do no harm and may do much good. "How will they compare with kainit?" Kainit is valuable principally for the potash it contains. Lime and salt contain no potash.

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Special Crops.

A somewhat too prevalent tendency in American agriculture is that of blindly "following suit." When a farmer discovers that his neighbor has made a good thing from a special crop he concludes that it would be well and easy to do likewise. If he is successful the contagion spreads, and thus a district, a township or a county becomes possessed with a mania for growing onions or cabbage or sweet potatoes. While the certain industry adopted might yield exceptionally good returns to a few who were especially fitted for it, the general engaging therein results in too great production and a glutted local and near-by market.

Before engaging largely in the cultivation of a special crop, the farmer should carefully study the possible market and ascertain whether he is so situated, geographically, that his crop can be put on the market without sacrificing its entire value in transit. For a local market, unless it is that of a large city, no special crop can safely be attempted on the same scale with wheat or corn. Even for a city market circumstances may be such that certain crops had better be discouraged in that vicinity rather than added to.

The cabbage growers of Lenawee county, Mich., are famous beyond the confines of their own State for their success with that vegetable. But so immense has their output become that after surfeiting the entire adjacent territory, the bulk of the crop sometimes must be shipped many hundreds of miles to find a market. In seasons favorable to its growth generally, such as the last, much of it so shipped does not repay cost of transportation, as it meets in each market a local product almost if not quite equal to the demand.

It is only a few years since onion growing began to be a market feature of the agriculture of Lake county, Ohio. Last season there were 330 acres of onions under cultivation. The onion crop was generally good throughout the country: Lake and the counties and cities adjacent could consume but a small portion of the local product. The result may be summed up by this item, clipped from a local paper: "—— —— of ——, Lake county, last week dumped out 500 bushels of onions of last season's crop, for which he could not find sale at prices that would pay for shipping."

Such experiences do not prove that farmers are unwise to try growing vegetable crops in place of grain, or to attempt any new departure that seems to give promise of better profit. Such a course is made imperative in our older States by the increasing value of land. It must be made to return more money per acre. But they emphasize the fact that it may not be wise for a farmer to adopt just the course his neighbor has taken for the same end, and thus help to effect excessive production of any crop. This country is so large and non-producers are becoming so numerous an element in our population that there need scarcely be a surplus of any food product, if properly distributed. But in many localities the production of articles that are not staple and are perishable or so bulky as to make shipping unprofitable, may make the problem of profitable agriculture harder instead of easier of solution.

Western-Dressed vs. City-Slaughtered Beef.

The vastness of the question, the magnitude of the interests involved, call for calm and somewhat lengthened consideration. The question has many sides; the feeding of large cities; the prosperity of a large portion of our agricultural interests; the problem of railway transit; the health of the beef-consuming public; the influence that home laws may have on our foreign trade; what laws are best to secure the interests of all; how to protect the producer and the consumer from the greed of monopolists. Legislation which seeks local veterinary inspection of beef cattle on the plea that Western-dressed beef is diseased, is a dangerous enactment, in that our export beeves come largely from the Western centers, which provide the Western slaughterers with their beeves. To enact that the cattle of any State or Territory are diseased and must not cross their boundary line, means a strict quarantine against such districts. In cases of outbreak of contagious diseases this is a just and wise prevention, but to presume that all our beef cattle are dangerous to health is taking a sweeping view of the matter.

Laws that would secure a fair field of action are seemingly needed, as should one or the other of the rival interests prevail, the consumer and producer are certain to suffer; as it rests now, beef on the hoof is abnormally low in price, while in our large cities the consumer has obtained no concession in prices. Who, then, is it that secures the profit? Two classes of middlemen: the slaughterer and the retail butcher. What is needed is self-help. Producers must take courage, and if prices in our market appear low, then try others. Seek to come closer to the consumer, and by so doing absorb the profit of the Western speculator, who has grown wealthy on the fruit of his foresightedness and his untiring energy.

Seed Clover.

Seed clover is, year after year, one of the most profitable crops of the farm, where the conditions are favorable to its growth. The crop of the country is never so large as to glut the market. The man who has to buy clover seed in the Spring invariably pays what seems like a stiff price. Not infrequently the seed clover brings more than the first crop cut for hay.

One reason (perhaps the principal one) why the crop of seed clover is so small, is that, as usually handled, it is most disagreeable. Generally it is mowed away, as it is not thought possible to keep it in stacks; and the wheat can be threshed out of the mows by the time the seed clover is cut. There are few more disagreeable jobs than hulling clover in the barn. The dust is stifling. Men who suffer little inconvenience in threshing grain under cover, find that their lungs and throats will not endure the dust in the barn where clover is hulled. Besides, every corner of the barn is fouled. It is impossible to keep the dust within bounds.

This objection is obviated when the clover is stored in barracks, where it may be kept as well as in a mow. The barrack is simply a roof, with the sides open. Seed clover may also be kept in good condition in stacks topped with timothy or straw. As the straw or hay is put on the wagon, let it be wet down with the garden-hose; it can then be put on top of the seed clover stack much better. The clover haulm and chaff may be used for feed or as an absorbent in the stables; but it is so dirty and disagreeable to handle that it is as well to use it at once as a fertilizer. The barracks or stacks may be put in the center of the field to be manured, and the stuff be spread as the seed is hulled.

It is the opinion of many that if the hulling is deferred until cold weather more seed will be obtained; but if the clover is perfectly dry, hulling need not be delayed. We have known seed clover to be hulled clean right from the field, but the weather is so uncertain that this is usually too risky. Some think, also, that it is better to let the seed clover rot somewhat. This makes the hull remove easily, but quite as much seed can be got without, and rotting is risky. The better plan is to let it lie as mown until well cured. When it is well cured, rake it up and put in barracks or stacks at once.

The Settlement of Oklahoma.

"Can a nation be born in a day?" exclaims the inspired penman. The nearest to an affirmative of any event in human history was the irruption into Oklahoma, on the 22d of April. At noon the region was a wilderness, without a single legal settler. At four o'clock in the afternoon it had a population nearly one-third as numerous as that of the State of Nevada, and in two embyro cities elections were in progress for city officers. In a week the first hardships were overcome, provisions and good water had become reasonably plenty, and troops of disappointed or disgusted boomers were wearily wending their way out. The settlers who were early enough to secure claims were so busily engaged in breaking up and seeding their land that there was no need for the soldiers who had been sent to preserve order.

The disgraceful feature of the movement was the dishonest greed of men who entered the coveted land as U. S. deputy marshals, and the connivance of the marshals who gave them the authority for the purpose. One marshal in Kansas is reported to have given appointments to no less than seven hundred of these special deputies, who all rushed in and seized upon choice locations while the law-abiding settlers were waiting on the border. However, the authorities at Washington promise to sift the matter to the bottom.

The Best in the World.—Frederick D. Cooper writes from Southwest Manitoba under date of March 10th: "We are having every prospect of an early spring; already many acres of wheat have been sown. The March number of the AMERICAN AGRICULTURIST excels any agricultural paper in the world."

FARMING IN FOREIGN LANDS.

In 52 trials with sorghum in England, last year, the crop was a total failure in 46, and in the other six cases the measure of success was infinitely small.

The Mercers Company of London is thinking of establishing an agricultural college on its extensive farms, and proposes to devote $300,000 for the purpose.

Steps are being taken in England to increase the home production of butter. It is held that the large importations are due to the use of improved machinery abroad.

In the Aberdeen district in North Scotland, latitude 57 degrees, it is too cold to grow corn, yet this region produces some of the finest fat cattle in the world. They are fed largely on barley, oats and rye.

A deposit of a soft, slimy substance, of very offensive odor, which resembles nitrate of soda in composition, has been discovered near Mount Magnificent, in South Australia, and it is proposed to utilize it for fertilizing purposes.

An extensive deposit of guano is being mined by Grice, Somers & Co., Melbourne, Australia, on Malden island. The deposit lies on the surface, and is from three to four feet deep. This guano brings about $35 per ton delivered at Melbourne.

Paris doctors have condemned the saccharin or artificial sugar produced from coal, because it seriously troubles digestion. They recommend that it be prohibited as an article of food, and a law to that effect, we believe, has recently been enacted.

A creamery has just been started at Galloway in Scotland at which the manufacture of oleomargarine will be introduced. Genuine butter will be used in connection with other fats. We believe this is the first instance of a creamery openly going into the manufacture of bogus butter.

Government protection of forests against fire is on trial in parts of India. During 1888 the protection of a tract of 1,225,000 acres of forest was attempted, and only 100,000 acres were burned over. The cost of protecting the balance was only about $13,000. The system is claimed to be successful.

Old and dead clover seed treated with sulphur fumes can be made to look as bright and yellow as the very newest and best seeds. Worthless seed thus treated has been used to adulterate good clover seed in England, but through the exertion of several members of the seed trade one of the offenders has been heavily fined.

Instead of paying the individual to enter creameries or go on farms to learn the business, as is the case in this country, the practice in England and Scotland is to charge a fee for such instruction. A new dairy factory advertises to accept pupils for a fee of $2.50 per week, the pupil to give his whole time and pay his own board.

The London brewers having advanced the price of spent grain, cow-keepers are agitating the utilization of dried grains, analyses by Dr. Reynolds and Prof. Holdefleiss showing a very favorable comparison with oats, hay and linseed cake. Dried brewers' grains are quite extensively fed by dairymen in New York, Pennsylvania and New Jersey.

The phylloxera has not been exterminated in the vineyards of Southern Africa, as had been fondly hoped. The government is criticised for having taken no efficient means to protect the country against the admission of vine sticks from infected vineyards in other colonies, and potatoes grown in infected vineyards have been sold for distribution throughout the country.

Each member of the Royal Agricultural Society of England is entitled to the journals of the society, the privileges of a large library and reading room, and at low rates the services of provincial veterinary surgeons, and may also consult professors of the Royal Veterinary College, and may send cattle to the college infirmary. They may obtain analyses of feeding stuffs, manure, etc., botanical reports and entomological advice. The annual fee is five dollars.

The French government annually devotes about a million dollars to agricultural education. This is done in six ways. First, simple agricultural instruction in the primary schools by systematically trained teachers; second, by teaching practical farmers through institute meetings; third, by aiding the formation of local experiment stations and laboratories; fourth, by aiding the establishment of a sort of high school of agriculture in various sections; fifth, by direct endowment of national schools of agriculture, entomology, veterinary science and horticulture; sixth, by establishing at Paris a special institute or species of university, commanding the services of the first scientists of the day.

A certain class of would-be scientists are recommending our farmers to feed mixed cattle foods just as they use mixed fertilizers. A circular issued by the British Cattle Feed Co., which has just been formed to absorb the business of three firms in this line, gives the true inwardness of this scheme. It shows that the average price received for the mixed food is $100 per ton above the cost of the article. Allowing for expenses, the prospectus is a brazen avowal that the patrons of the company are charged 300 per cent profit simply for mixing and grinding foods.

Artificial freezing is the latest French scheme for preserving milk. The very opposite of this is a Norwegian invention, whereby the minute organisms which cause the fermentative and putrefactive changes in milk are destroyed by heat. The milk is then hermetically sealed and will keep fresh for an indefinite time. A large company has been formed to supply milk from Norway to the London market under this patent. This is an extension of the process of sterilizing milk quite common in families in this country where absolutely pure milk for infants is desired.

The Victorian Farmers' Association is growing in power. It is in some respects similar to the Grange or Farmers' Alliance in America. It has organized a Farmers' Co-operative Company, which proposes to import at the least expense everything the members want, and also handle their exports. All the orders of the members are to be sent to this agency. The agents doing the business are to have a commission of one per cent, this to cover all expenses of every kind. The farmers are exercising greater influence than ever before in political matters as a result of this organization.

English farmers find it profitable to season hay or straw that has been wet by sprinkling it as it is put in with powdered fenugreek, which has the property of sweetening the fodder and rendering it palatable. In the far East the same spice is mixed with human food to assist digestion as well as to flavor the dry food. Unlike any other spice seed, fenugreek has valuable feeding properties and is itself wholesome and nutritious. It is a tonic and engenders a healthy appetite. On the continent the seed does not cost much more than cotton seed meal and is used at the rate of seven to ten pounds per ton of hay or grain.

The little kingdom of Denmark, with less than 15,000 square miles (an area not twice the size of New Jersey) and with a population of near 2,000,000, is a large producer of butter. The milch cows number about 900,000 and the export of butter, mostly to England, was 45,000,000 pounds in 1887. This is nearly three times the amount exported in 1877. The increased production is largely due to the establishment of co-operative dairies and to the use of centrifugal cream separators. The Danes have put in operation the system of paying for milk according to its quality, and this system has incited dairymen to more care in the selection of stock and in feeding them.

So energetic has been the action of the Royal Agricultural Society of England since 1882 in suppressing adulterated grass seed mixtures, and so ably has the society been supported by a large number of seed merchants who have guaranteed the germination and purity of their stock, that the whole foreign grass seed trade has been revolutionized. Mr. Faunce De Laune now says that any agriculturist from Sweden to Austria who wishes to purchase grass seeds can get them pure of their kind, and of a guaranteed germinating power, at a less cost than the adulterated article could formerly be procured. We regret to say that this is not true of the American grass seed trade, although our leading seedsmen are now giving more attention to this business, and furnish as good seed as can be obtained anywhere.

Matters of Business.

Cider-Making.—The progress of the railroad over the old stage-coach is not greater than that marked by the Boomer & Boschert presses over the primitive methods of making cider. The old creaking press, with its wooden screw, is now replaced by a powerful machine, driven by power, if desired, the "cheese" of straw and pomace by neat wooden racks, and other appliances, which render cider-making a rapid, cleanly and profitable business. Boomer & Boschert Press Co., Syracuse, N. Y., make them.

A Salary with expenses paid will come handy to any one who is now out of employment, especially where no previous experience is required to get the position. If you want a position, see advertisement on Page 325, "A Chance to Make Money."

Road-Making.—The Pitts Patent Road-Maker, made by the Pitts Thresher Works, Marseilles, Ill., after the test of many years of practical operation, has proved to be thoroughly reliable and economical in its operations. It is commended to the attention of road-masters and highway commissioners throughout the country.

Pure Butter Color.—The Improved Butter Color of Wells, Richardson & Co., having been submitted to rigid analysis at the office of Internal Revenue, Washington, was reported to be wholly free from foreign fat, animal or vegetable. Butter in which it is used is therefore exempt from any liability to Internal Revenue tax.

Improved Wire Fence.—The steel Stay Guards for wire fences have attained a rapid and well-deserved popularity. Those who have tried these guards find that with plain wire they make a strong, durable fence, which is not costly, and is wholly harmless to stock. It can be built of any height, is more durable than boards, and costs about three-fifths as much. It is made by the Wire Fence Improvement Co., 325 Dearborn street, Chicago, whose advertisement will be found on another page of this issue.

Dairy Supplies.—The new illustrated and descriptive catalogue issued by Cornish, Curtis & Greene, Fort Atkinson, Wis., is replete with information for all interested in dairying, butter or cheese making. Implements of all kinds, from a steam-engine to a strainer, are described and depicted, and all are of the best pattern and workmanship. The business was established in 1865, and has been a powerful factor in developing the dairy industry to its present magnitude in the Northwest.

A Useful Rein-Holder.—Mr. E. E. Brewster of Holly, Mich., has invented a rein holder, which may be attached to the dash-board and made to keep the reins from falling into the dirt or under the horse's feet while the driver is absent. It takes up about the same space as a whip socket and holds the reins firmly, avoiding the annoyance of soiling them, and in case of a nervous or spirited horse, the liability of taking fright and running. It can be attached to any vehicle or farm machine which is drawn by horses.

The Victor Baling Press.—Every person who has occasion to press and bale hay, straw, wool, moss or any similar commodity, should send to George Ertel & Co., Quincy, Ill., for a catalogue of their baling presses. Their latest and highest triumph is the Ertel Victor Baling Press, which has attained great popularity wherever it has been tried. It is portable, being mounted on four broad-tired wheels, double acting, works by horse power and is built in the most substantial and workmanlike manner.

A Humane Device.—There is no more prolific cause of suffering to working horses than galled shoulders. The better the condition of the horse the greater the liability to collar-galls. The only effective and reliable preventive is the "Success" sweat-pad. There are several cheap sweat-pads in market, but the "Success," manufactured by the E. L. McClain Manufacturing Co., of Greenfield, Ohio, completely fills the requirements of a perfect pad. It adjusts itself readily under the collar to the horse's shoulders, absorbing the sweat and protecting the skin from friction and irritation. Every horse kept at work in warm weather should be provided with a "Success" sweat-pad.

Two Convenient Articles.—The Elite Manufacturing Co., of Chicago, have among other things, two household devices of unique and peculiar value for which agents are wanted. One of them is the Elite Trouser Stretcher and Shaper, which is an effectual remedy for the "knee complaint" that is certain to overtake every pair of trousers sooner or later. The article must sell wherever trousers are worn. The other article referred to is the Excelsior Portable Burglar Alarm. It can be applied almost instantly to doors, windows, drawers, etc.; requires no screws or nails, and is certain in its operation. Agents should address as above.

Wind Engines.—The cheapest mechanical power for daily use is the wind mill. Various patterns are in market, all embodying valuable features. One of the latest and best is the Leffel Iron Rim Wooden Mill, made by the Springfield Machine Co., of Springfield, O. It combines the lightness and strength of the old styles of wooden mills with the durability of iron ones. It has two concentric rims of band iron, each perforated with oblique openings, in which the wooden slats are firmly held by a peculiar method. They cannot split, warp or drop out. It is built throughout of the best materials, the working parts being of malleable iron. The working parts have stood the test of thirteen years' use, and have proved to be all that can be desired.

ANSWERS TO CORRESPONDENTS.

Raisin Grapes.—M. M. J., Center Co., Pa.: We are not acquainted with any variety of grapes from which raisins can be made east of the Rocky Mountains. All attempts that have been made in this direction have proved unsuccessful.

Managing Eggs in Incubators.—Mrs. E. M. Buell, Onondaga Co., N. Y.: The eggs in an incubator should be turned twice every day, and during the second week it is best to turn them every eight hours. You should have a moisture gauge in your machine. Otherwise, try keeping moist sponges among them, but not touching the eggs. Do not "manage" the chicks at all while hatching. Let them entirely alone until they are twelve hours old. Consult the back numbers of the AMERICAN AGRICULTURIST for helpful articles, under the heading of "Artificial Hatching" and "Incubators."

Making Mushroom Spawn.—Fred N. Wallace, Wasco Co., Oregon: Mushroom spawn is for sale by all first-class seedsmen. If one wishes to make it for himself, Peter Henderson advises to take equal portions of horse droppings, cow dung and fresh loam; mix the whole thoroughly together as you would make mortar; then form it into cakes about the size of large bricks; place these on edge, under cover, until they become half dry; then insert into each a piece of spawn half an inch or so square, and let the bricks remain until they are quite dry; then spread about eight inches of horse dung over the floor of the shed, on which build the bricks in a pile three feet wide, by three feet high, keeping the side in which the spawn has been put uppermost, then cover them over with sufficient stable manure, so as to give a gentle heat through the whole. In two or three weeks the spawn will have spread itself through the whole mass of each brick; they are then removed to a dry place, and will retain their vital properties for many years.

Celery Rooted Fennel.—D. Robertson, Crawford Co., Ohio, desires information about celery rooted fennel, by which is probably meant the large Sicilian Sweet Fennel. This is an annual with large leafy stalks which are set very close upon the stem and nearly lap each other at the base, forming a sort of head as large as one's fist. This is earthed up to blanch it, similar to the manner of hilling up celery. This vegetable is eaten raw with salt or may be boiled and served with white sauce. It is also used as an ingredient for soups and stews.

Manure for the Prize Crops.—H. C. Pierson asks about the conditions of applying fertilizers to prize competition acres, and refers to this statement in the April number: "Application to the contest acre from September last (1888) until the 1889 crop is harvested of any fertilizer, manure or manurial substance whatever, water and land plaster (gypsum) alone excepted—in addition to Stockbridge, Mapes and Quinnipiac brands of commercial fertilizers—will debar the acre from competing in the special fertilizer prize. These restrictions do not apply to the AMERICAN AGRICULTURIST premiums. They are alone applicable where premiums from fertilizer houses are concerned. For instance, the crop competing for the Mapes prizes must have no other manure or fertilizer of any kind applied to it—water and plaster excepted—than the Mapes fertilizer, after last September, the 30th day of which is just as much September as the first day of that month. The same rule applies to the Stockbridge and Quinnipiac prizes. Hence, anyone who has applied anything besides Quinnipiac commercial Fertilizer to the acre since the 30th day of last September cannot compete for the Quinnipiac prizes, but he is in no way debarred from competing for the AMERICAN AGRICULTURIST'S prizes."

Plant for Name.—George Knoche, Franklin Co., Ohio: The little twining plant coiled around the stem of cuphea is a Dodder. The species is not easy to determine from a small section of dried stem, but it appears to be *Cuscuta chlorocarpa*. The Cuscuta or Dodder is a parasitic plant, of which at least eight species are indigenous in the Northern States. The stems are leafless and thread-like, yellow or orange in color, bearing dense clusters of small flowers, mostly white, in summer or autumn. The plant springs from seed in the ground, and when a few inches high twines around some herb or shrub growing near. In a short time the Cuscuta perishes at the base and becomes wholly parasitic on the plant around which it coils. It is injurious to every plant it fastens on. Two European species work great damage to flax and clover.

Scab in Sheep—Apple Trees.—Inquirer, Henrico Co., Va.: (1) A field which has been occupied by sheep infected with scab would not be a safe pasture for sheep in less than a year. The itching is caused by a minute acarns or mite, numbers of which are left on fences and other objects against which the scabby sheep rub. They are quite tenacious of life, even while deprived of visible means of support. (2) Where an orchard has borne steadily for ten years or more, and now the apples are diminished in size and drop prematurely, the cause is from exhaustion of plant food in the soil. Scarify the surface of the soil and give liberal dressings of stable manure or commercial fertilizers.

How to Improve a Clay Land Farm.—Mr. Thomas Lawson, St. Francois Co., Mo., asks us the following questions: "I have impoverished limestone clay land. In a good season it will make 25 bushels of corn per acre. There are spots that are too wet. I am not able to underdrain it, as I would have to bring the tiles 130 miles from Illinois. The land is not valuable enough to pay for it. It is worth only $20 per acre. We have severe droughts here and clover fails to catch oftener than with you. Much of it is heaved out and killed by freezing. No one here can tell me of any other plant as good as clover for enriching the land. Will land plaster help the clover? I wish to sow the clover with oats." Plaster will do no good on wet land. The true remedy is underdraining. If the land in its present state is worth $20 per acre, it would pay to drain it, as underdraining would make it intrinsically worth four or five times as much. But if we may infer that the best fertile, naturally-drained land is worth $20 per acre, it may pay better to buy such land than to underdrain the wet land. The next best thing to do is this: Instead of sowing this run-down limestone clay land to oats and seeding it down with clover, it will be better to summer fallow it and work it till it is thoroughly pulverized and reduced to a fine, mellow condition. Sow it to winter wheat in September, and at the same time seed it down with six quarts of timothy seed per acre. In the spring, just as the snow is going off, sow broadcast on the wheat four quarts of red clover, three quarts of alsike clover, and one quart white clover. You will probably get a good crop of clover and timothy hay the first year, and a good crop of timothy hay the second year. Mow it for hay or pasture it as long as it will pay to do so. What is wanted is a *good sod*. If you can get this the battle is won. A good sod well plowed will make the land light and springy under foot and enable you to grow good corn and other crops. Summer fallowing is the basis of the improvement.

A String of Questions.—E. P. Lamb, Fond du Lac Co., Wis., asks: 1. What is the best manure for wheat? 2. How much salt can be sown per acre without injury to crops? 3. Is it necessary for the cock to run with the flock all the time? Answers: (1) This is a pretty large subject, for information upon which we refer our friend to the articles headed "The Growth of Wheat," etc., beginning in our issue of September, 1887, and continued through that and the following year. (2) Two hundred pounds to the acre. (3) No; three months in the year is amply sufficient.

Posting Grounds.—A. V. Wiley, Albany Co., N. Y.: The laws of New York provide that any person who shall knowingly trespass upon inclosed or cultivated grounds for the purpose of shooting or hunting game, after public notice has been given by the owner or occupant thereof, shall be liable in addition to actual damages, in exemplary damages not exceeding twenty-five dollars nor less than fifteen dollars. The notice referred to shall be given by erecting sign-boards not less than one foot square, upon at least every fifty acres of land upon or near the lot lines. Anyone who shall tear down or deface any such sign-board is liable to a penalty of twenty-five dollars. Other provisions of the law are not necessary to cite here.

Red Polled Cattle.—George W. Strickler, Pike Co., Ill.: The Red Polls are unquestionably superior to the "common cattle," both for milk and beef. They have no such marvelous records for milk or butter as the special "dairy" breeds, but give good yields and fairly rich milk. Neither do they have the surpassing excellence of the leading beef breeds, but are hardy, mature early and lay on flesh much more readily than common "native" stock.

Tarring Seed Corn.—Dr. G. P. Davis, Hartford Co., Conn.: The tar is diluted with hot water at the rate of about a pint of tar to a gallon of water. The corn is soaked in the dilution, taken out and stirred into dry land plaster until every kernel is slightly coated. It can then be handled the same as dry corn.

A Durable Roof.—M. D. Deibler, Dauphin Co., Pa.: The various kinds of roofing material advertised on Page 267 are all good. A shingle roof may be made very durable by dipping the shingles in crude petroleum before they are laid, and giving them a new application yearly. Still the attrition of rain will in time wear out shingles sooner than the metallic and other patent roofing.

Buttons.—S. X. W., Sandusky, O.: There appears to be some confusion in regard to the word "Button" as applied to trees and bushes or shrubs. The Button-tree of the West Indies is the *Conocarpus erecta*. The fruit is a scaly cone, but very hard and compact; hence the name "Button-tree." The button-wood of the United States is the *Platanus occidentalis*, a very common and large tree, the bark of which scales off in large, irregular-shaped patches, giving to the stem and large branches a spotted appearance. The seeds are produced in globular, pendulous balls or buttons, which remain on the trees during the Winter months. This name of "Button-wood" has been applied in some European botanical works to our common "Button-bush" (*Cephalanthus occidentalis*), a shrub belonging to the cinchona family. It is common shrub in low grounds, from Florida to Canada, and its white flowers are produced in dense globular heads about two inches in diameter and late in summer. It is rarely seen in cultivation, but is worthy of a place in all large collections of shrubs.

Best Variety of White Beans for Market.—Howard Carpenter, Cold Brook, N. Y.: It is impossible to say which is the most profitable bean to raise for market. It depends much on the soil and season and on the experience of the grower. The Boston Marrow and White Kidney command a higher price than the "Medium" or Pea bean, but they require good land and a certain amount of skill in curing, etc. Those who raise beans for the first crop would better, as a rule, try the hardier and earlier varieties. In Western New York one of the most favorable varieties for general cultivation is the "Marrow Pea." Plant from the first to the middle of June. Sow two-and-one-half feet apart and drop five or six beans in a place, fifteen inches apart in the row, and cover with from one to two inches of mellow soil.

A Little-Known Shrub.—W. C. E., Chicago, Ill.: The shrub you have received from a friend in the East under the name of *Nevinsia Alabamensis* is not as yet common in the nurseries, and this is probably the reason why you have not found it in the catalogues consulted. It is a handsome, low-growing and rather slender shrub, bearing pure white, fringe-like flowers, these appearing in the latitude of New York about the first of June. The *Nevinsia*, or as it is sometimes called, "Snow-flower," was found many years ago in the cliffs near Tuscaloosa, Ala., and was named by Prof. Gray, in honor of Rev. R. D. Nevius. Although this shrub has been in cultivation for a third of a century or more and multiplies rapidly from suckers, it appears to be as yet scarce and little known except in a few old gardens in the Eastern States.

Top-Dressing for Grass.—W. C. asks, "What is the best top-dressing for land sown in grass this Spring, and when should it be applied?" If the land was in good condition before it was seeded down, probably the best top-dressing would be two hundred pounds of nitrate of soda per acre sown broadcast just before or after a rain; you will see the effect in three or four days. Whether it will pay or not depends on what grass or hay is worth. With hay at ten dollars per ton it will seldom pay; at twenty dollars per ton its judicious use will be often quite profitable. If the land is poor, phosphates and potash will be needed in addition to the nitrate of soda.

Rheumatism

"Having been troubled with rheumatism at the knee and foot for five years, I was almost unable to get around, and was very often confined to my bed for weeks at a time. I used only one bottle of Paine's Celery Compound, and was perfectly cured. I can now jump around, and feel as lively as a boy." FRANK CAROLI, Eureka, Nevada.

Paine's Celery Compound

has performed other cures as marvelous as this—copies of letters sent to any address. Pleasant to take, does not disturb but aids digestion, and entirely vegetable, a child can use it. It cures even those whom doctors call incurable. What's the use of suffering with rheumatism? $1.00. Six for $5.00. Druggists.

WELLS, RICHARDSON & Co., Burlington, Vt.

FOR SALE. A well established manufacturing business, old age the cause of selling. H. TOPPING, Marion, N. Y.

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PAYS THE FREIGHT.

3 Ton Wagon Scales, Iron Levers, Steel Bearings, Brass Tare Beam and Beam Box for

$60.

Every size Scale. For free price list mention this paper and address

JONES OF BINGHAMTON, BINGHAMTON, N. Y.

JACKSON BROTHERS,

New York State Drain-Tile and Pipe Works,

MAIN OFFICE, 88 Third Ave., ALBANY, N. Y

ROUND, SOLE AND HORSE-SHOE TILE. Over 13 Inches Long. By Cargo or Smallest Quantity. Price List on Application. Prices that cannot be undersold. Our new improved Machinery makes a Superior Round Tile, excelling anything offered before and at greatly reduced prices; also Vitrified Glazed Pipe. First premium wherever exhibited. Drain Tile Machines for sale.

COLORED SILKS.

We have just made one purchase of 35,000 yards of Plain Colored Silks, 19 inches wide, in 40 different shades. The entire lot has been placed this week in our Retail Silk Department. The price is 65 cts. per yard; the goods are fully worth 95 cts.

We know of no occasion when so large a quantity and so excellent a quality of Colored Silks has been offered at retail in New York city for so little money.

Samples sent on request.

James McCreery & Co.,

Broadway and 11th St., New York.

Took All His Pains Away.

A. M. Chisholm, of No. 2724 Stoddard Street, St. Louis, Mo., writes:

"During my long residence in Canada I suffered for years from severe pains in my back, across the region of the kidneys, and by the constant use of ALLCOCK'S PLASTERS invariably obtained great relief. Upon removing to St. Louis, I was again troubled with the same complaint, and was advised to use Magnetic and other kinds of plasters, without being relieved of pain, so fell back to my old friend ALLCOCK, who gives me more relief than any other I have ever tried. I always recommend them to my friends and all who suffer from pains and aches of any kind."

Beware of imitations, and do not be deceived by misrepresentation. Ask for **ALLCOCK'S,** and let no explanation or solicitation induce you to accept a substitute.

H. W. JOHNS'

ASBESTOS

PAINTS, COLORS, ETC.

LIQUID PAINTS.	COLORS IN OIL.
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ASBESTOS ROOFING.	BUILDING FELT.
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FOR ELECTRICAL, STEAM AND MECHANICAL PURPOSES, ELECTRICAL INSULATING SHEETS, RINGS, WASHERS, CELLS, ETC.

Samples and Descriptive Price List, free by mail.

H. W. JOHNS MANUFACTURING CO.

87 MAIDEN LANE, NEW YORK.

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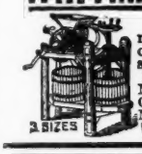

The Best Cider and Wine Mill made. Will make 20 per cent. more cider than any other. Geared outside. **Perfectly Adjustable.** Prices as low as any first-class mill. Mfrs. of Hay Presses, Horse Powers, Corn Shellers, Feed Cutters, Feed Mills, etc. Send for circulars.

3 SIZES **WHITMAN AGR'L CO. St. Louis, Mo.**

BABY CARRIAGES

100 styles. Automatic Brake on all. *Free.* Adjustable, Reclining and Invalid Wheel Chairs. *Factory Prices.* Send stamp for Catalogue. (Name goods desired)

LUBURG MFG. CO., 145 N. 8th St., Philada.

WHEAT FERTILIZER $20 PER TON. Sold to Farmers direct from our works. No agents. YORK CHEMICAL WORKS, York, Pa.

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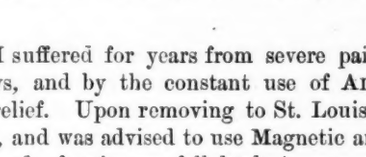

CHEAP STRONG **WATER PROOF,** Applied by our new Patent method with ½ the labor of any other way. Unlike any other roof. **No rust or rattle.** An **Economical** and **DURABLE SUBSTITUTE** for **PLASTER** on walls. **Ornamental CARPETS** and **RUGS** of same material, **cheaper** and **better** than Oil Cloths. ☞Catalogue and **Samples Free.**

W. H. FAY & CO. CAMDEN, N. J.

Walter's Patent
Cooper's Patent **SHINGLES.**

Cooper's Broad Rib Roofing,

Made from Tin and Steel Plate. For public and private buildings, barns and outhouses. Absolutely rain, storm and fire proof, easily applied, artistic in finish, without any exceptions the BEST IN THE WORLD; catalogues free. Address **NATIONAL SHEET METAL ROOFING CO.,** 509 East 20th St., New York City. Mention this paper.

We will furnish the most economical roofing and siding, all styles. Also Metallic Shingles from Iron or Steel with full directions and low prices.

GARRY IRON ROOFING CO., Cleveland, O.

Mention Agriculturist.

Most Durable Roofing

Siding, etc., Plain or Corrugated Iron or Steel furnished with full instructions for applying, and at best prices, by

The Cincinnati Corrugating Co.,

CINCINNATI, O.

FARM WAGONS—Best Wagon made $50. Buggies, Carriages, Harness, etc., at ½ price. Send for list. Chicago Scale Co., Chicago.

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48 CENTS.

SPECIAL JUNE OFFER: You are busy, eh? So we want to be. Orders fall off in June. A common knife like this will cost you 75c in any retail store, but these blades are of the highest quality razor steel, file-tested and **KNOWN to be good** before sending out. It is cheap for a silver dollar, but our price is **48c,** postpaid; 5 for $2. A dead man ought to be tempted. Boys' 2-blade, 25c; Girls', 25c; Ladies' pearl, 50c; **Butcher** 6 in., 50c; 8 in. shears, 75c; razor steel paring knife, 25c, all postpaid. Send for illustrated free list, also "How to Use a Razor."

Maher & Grosh,

48 S. Street,

TOLEDO, OHIO.

The Art of Canning.

MARY W. EARLY.

Amongst all the modern inventions tending to increase human health and comfort, I doubt if there is any entitled to take precedence over canning, an art which enables us to have in almost their pristine freshness and perfection the fruits and vegetables of summer and the early autumn, and the bleak seasons of winter and early spring. This invention is especially a blessing to the average country house-keeper, in an isolated neighborhood, prevented both by her location and the slenderness of her means from marketing, or buying fancy groceries (such as macaroni, prunes, etc.) to supply the deficiencies of her table at bare seasons of the year. If she will but master the art of canning, she may set her household down to almost as palatable a table in winter as in summer, never reducing them to the dreary winter dinners of old-fashioned country life, dried beans, dried apples and hominy.

There are three essential points in canning. First, the fruit or vegetables must be boiling hot when put up; secondly, the vessel must be filled to the very brim, leaving no interval for the air; thirdly, the vessel must be sealed up perfectly air-tight. If you fulfill all these conditions, the canned article will be sure to keep.

We often hear the question debated amongst house-keepers as to whether it is best to use glass or tin for canning. I would advise a housekeeper to compromise by using some of both, though for my own part, I have succeeded better with tin. Glass, however, has some advantages over tin, but it requires more careful handling and more careful protection from both heat and cold. The action of sunlight on glass jars has a tendency to make the fruit or vegetable in them ferment. You ought, therefore, to keep your glass jars in a cool, dark place in summer and the early autumn, removing them to a warmer place in winter, or putting an oil stove in the closet with them, in very cold weather, as freezing destroys both the glass jars and their contents. A nice way to can fruit in jars is to put the fruit in the jars as soon as you have peeled it, adding a little water. Then put several jars in a large baking pan or dish pan on top of the stove, partly filled with cold water, and leave the jars in this vessel till the fruit gradually comes to a boil, the vessel slowly getting hot at the same time, and of course the fruit will shrink as it gets hot and require to be replenished, so you will have to use the fruit out of one jar to fill up the others. When it has reached the boiling point, screw up the jars, first filling them to the very brim, and for three days following repeat the screwing of the tops, as you can never screw them really tight the first time. If there is no sign of fermentation on the fourth day, you may feel pretty secure of its keeping. If you cannot command a dark place for your glass jars, tie layers of brown paper around them to keep out the sunlight. Nothing is more convenient than canned fruit to a country house-keeper when unexpected visitors arrive just before dinner. This will relieve her of all trouble and perplexity about the dessert, as it will enable her to have a nice impromptu one on a few minutes' notice; and it will be doubly nice, if she can supplement it with cream, a delicacy which most country house-keepers can command.

Not only are canned peaches and pears very nice but canned apples are equally so. In the early autumn, pick out such apples as are a little specked, or which do not keep well through the winter. Peel and core them, cut them up in small bits, and pour enough water over them to keep them from sticking to the kettles. Stew them down fine, and run them through a colander as if you were making apple float. Then can them, and you will find them very serviceable in winter, either just eaten with cream and sugar, or made into pies or a valise pudding. Sliced apples for frying are also nice for canning, put on in a little hot water, and allowed to come to a boil before canning. They are far more palatable than dried apples. I do not think it worth while to put sugar on canned fruit, as it adds nothing to its keeping, and if the fruit spoils increases your loss. It is time enough to sweeten the fruit just before you put it on the table. If you run short of preserves during the winter, you can readily convert your canned fruit into these. Canned peaches, if they are soft, make as good ice cream as fresh ones.

Some house-keepers, intent on lessening their trouble (like the pilgrim who boiled the peas in his boot), can and preserve on an oil or charcoal stove which they set out under the trees, in hot weather, but I always find it more convenient to carry on these processes in the kitchen, with all the various utensils I need, at hand; and besides, I can preserve or can in several vessels at once on the kitchen stove. I think it is a good plan for a housekeeper to can a little every day, instead of going at it with a rush, every now and then. Whenever you have a gallon of tomatoes more than you need for table use, it is well to begin canning; directly after breakfast, or after dinner is the best time,—the former if you have only a few to can. In this case, put them in a large bowl, or dish-pan, before breakfast, pour scalding water over them and cover them, and they will then be ready to peel and put on, immediately after breakfast, before the fire dies out in the stove. Get together everything you will need before you begin canning. Lay an old newspaper on the kitchen table to protect it from any tomato juice or cement that may be spilled, and set the cans on this paper. I have discovered that you can boil tomatoes perfectly well in iron dinner pots washed free from grease, and this plan saves you a world of scouring which the use of a brass kettle would necessitate, as tomatoes turn brass green. When the tomatoes come to a boil, dip them up with a tin dipper and pour them into the cans. Have at hand a lot of soft, clean old rags to wipe the rim of the tin can perfectly dry, after filling it.

I cannot insist too strenuously on the importance of having this rim bone dry; one drop of moisture on it will cause the cement to fall off in a few days, and the contents of the can to consequently ferment. I lost my cans steadily for three years till some experienced house-keeper pointed out to me the vital importance of having the rim of the can bone dry. Since then, I have been highly successful in canning. I pass a soft, old cloth twenty times around the rim to make sure that it is perfectly dry. Taper cement is very nice, and saves much trouble. If you use stick cement, keep an old frying-pan to melt it in, and a pewter teaspoon to apply it with. Drop it from the point of this spoon into the groove intended for it, after tightly fitting down the top. If you hear a hissing sound when you are dropping the cement, it indicates the presence of moisture, and you must stop short and wipe the rim again.

The general directions given above for canning tomatoes will apply in all essential particulars to any fruit or vegetable. The main thing, as we have said above, is to put up the article boiling hot, fill the vessel brim-full, and make it perfectly air-tight. The same cans may be used for several years, if you will have them well washed and dried immediately after emptying them, and scour any stains that may appear on them. Put them away promptly till the next season. If you leave them out they will get battered, stained up and lost. Fit the right top on to each one, as you put it away. There is a surprising diversity in the size of tops, and no canned article will keep unless the top fits perfectly. The same cement, too, may be used for several years, if it is carefully put away. See that you have sound cans before you begin to can. I have known house-keepers to lose weeks of labor by not testing this point beforehand. Set your cans on a perfectly dry table and fill them with water, before you attempt to fill them with fruit or vegetables. In this way, you can detect whether they leak or not, and if they do, you can either have them exchanged or re-soldered.

My remarks are all intended for country house-keepers, with fruit and vegetables growing on their own places. I do not think it would be judicious in city house-keepers to can when they have to buy fruit and vegetables for the purpose. It would be far better economy for them to buy the articles already canned.

Canning adds so largely to the comfort of a household that I do not think a house-keeper ought to begrudge any amount of time and pains employed in mastering the art.

Red-Polled Cattle Breeders.

The American Red-Polled cattle club is now an incorporated body. At a recent meeting of the club in Chicago the incorporation was perfected, and the following officers elected: President, Gen. L. F. Ross, of Iowa City, Ia.; Vice-President, William Steele, of Merton, Wis.; Recording Secretary, J. McLain Smith, of Dayton, O.; Corresponding Secretary, S. D. L. Jackson, of Youngstown, O.; Treasurer, S. A. Converse, of Cresco, Ia. The Board of Directors was instructed by resolution to proceed with arrangements for editing and printing a herd book which shall include the present volume, and all entries that shall be made prior to the publication of the proposed volume.

A Charming Rose Book.

THE ROSE GARDEN. By William Paul, F. L. S., etc. Ninth Edition. London: Kent & Co. New York: Sold by the Orange Judd Co.

During the forty years which have elapsed since the first edition of Paul's "Rose Garden" saw the light it has stood at the head of rose literature. The present edition has been carefully and thoughtfully revised, and in part re-written. It leaves nothing to be desired as a complete manual of the rose. It is a comprehensive guide to the culture of the queen of flowers in two divisions. The first embraces the history and poetry of the rose, with detailed cultural directions. The second is descriptive of the different varieties of roses worthy of cultivation. It is further enriched by an article on "The Botany of the Rose," by J. G. Parker, F. R. S., and one on "The Entomology of the Rose," by Arthur W. Paul. The manner in which this is presented is no less noteworthy than the matter. The book is a sumptuous quarto, finely printed on paper of an ivory-like color and surface, and embellished with twenty finely-colored and sixteen plain full-page plates, besides a large number of smaller engravings illustrative of the text. It is infinitely the finest work on the rose ever published.

A Virginia Shorthorn Herd.

The famous Shorthorn herd of Palmer & Bowman at Saltville, Va., has passed into the hands of a joint stock company entitled the Palmer & Bowman Co., of which George W. Palmer is president and A. M. Bowman managing director. This herd was the first in this country from which exportations were made to the Argentine Republic. Ten more head of choice Shorthorns were recently sold from it to that destination. The fine bull Baron Liverpool 49903 and six heifers have been purchased from this herd by Thomas Jones, of Pulaski Co., Va. The bull Second Duke of Kent, whose portrait appears on another page of this issue, is at the head of the Saltville herd.

Catalogues Received.

AMERICAN MFG. CO., Waynesboro, Pa.: Catalogue of the American Fruit Evaporator, giving directions for using this unexcelled apparatus for drying and evaporating all kinds of fruits and vegetables. Also a separate catalogue indicating the uses for evaporating and drying prepared fruits, spices, etc., etc.

C. H. ANDREWS, Youngstown, Ohio.: Catalogue of the Oriole Stock Farm.

OLIVER DITSON CO., Boston, Mass.: Catalogue of valuable and popular musical works.

V. H. HALLOCK & SON, Queens, L. I., N. Y.: Illustrated catalogue of vegetable, field and flower seeds, plants, bulbs, small fruits, etc., etc. Many promising novelties.

MRS. J. B. HOWE, Kentland, Ind.: Descriptive circular and price list of the Pine Valley Poultry Yards; also Poland-China Swine.

KEYSTONE MFG. CO., Stirling, Ill.: Descriptive and illustrated catalogue of the first-class implements manufactured by this company, comprising the celebrated Keystone Disc Harrow, planters, drills, hay-making machinery, huskers, and fodder cutters, corn sheilers, horse power, etc., etc.

JACOB W. MANNING, Reading, Mass.: Special price list of fruit trees, small fruits, grapevines, ornamental shrubs and plants.

N. METZ, Lansdale, Pa.: Circular of Metz's Gape Worm Extractor.

MOREHOUSE & ANNIS, Rochester, N. Y.: Illustrated and descriptive catalogue of specialties and novelties in garden, flower and field seeds.

A. H. REID, Philadelphia, Pa.: Catalogue of Reid's Creamery Apparatus.

A. T. ROOT, Medina, Ohio: Illustrated and descriptive circular of apparatus required in the apiary.

UNITED STATES NURSERIES, Short Hills, N. J.: Price list of orchids. This is the largest list of orchids offered for sale that has come to our notice.

MRS JOSEPH WHEELER, Fayetteville, N. C.: Fruit canning made easy.

ZIMMERMAN MACHINE CO., Cincinnati, Ohio: Descriptive and illustrated catalogue of the Zimmerman Fruit Evaporator, which is claimed to be the only fire proof evaporator made. A large number of testimonials speak of its value.

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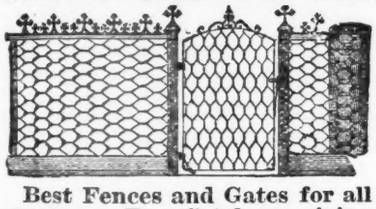

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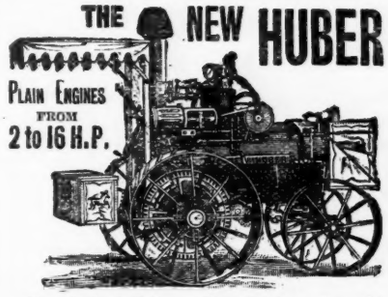

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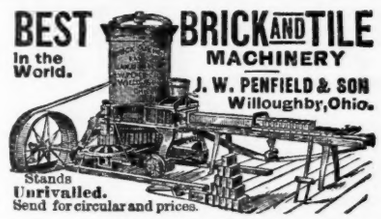

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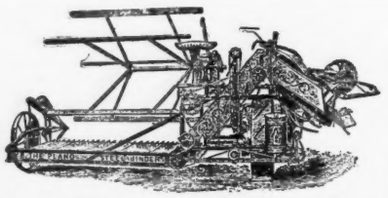

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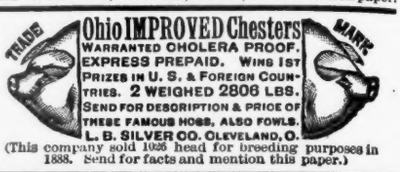

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SPRINGFIELD, OHIO.

Crayon Portraits Free.

Fraud is hydra-headed. No sooner is one head lopped off than others of similar nature "bob up serenely," and many of them are marked so as to appear like legitimate enterprises. For example, there is the "crayon portrait" scheme. Now crayon portraiture is an honorable profession when conducted, as it mostly is, in an upright manner. But there is a class of "artists" who send out alluring circulars, printed to imitate manuscript or type writing, and worded with a view of appealing to the tenderest emotions of the human heart. They offer to furnish without charge a life-size crayon portrait of the recipient or any living or dead friend whose photograph is sent them, provided that it shall be suitably framed and exhibited as a specimen of their work.

"There is no fireside howsoe'er defended
But has one vacant chair,"

and here is an apparent opportunity of securing a permanent memorial of the departed one. So the faded but sacredly cherished likeness is sent, and then the sender receives notice that he must purchase a frame from the "Portrait Company," a price-list from which to select accompanying the notice. In the end he receives a coarse picture, executed by some journeyman "artist." It is inclosed in a tawdry frame, covered with metal which soon tarnishes. The price charged for the frame affords a round profit on the transaction. Our former exposures of this sort of thing seem to have driven the enterprising operators to a change of name. They no longer advertise as a firm, but come out as a full-fledged "company." Their circulars have been received by Harvey Jewell, Cheshire Co., N. H., and others, who forward them to us.

Florida Land Schemes.

"Florida, the land of flowers, oranges and sunshine," as one of the circulars describes it, has many attractions, which a certain class of speculators use as baits for the unwary. The St. Andrews Bay scheme and its melancholy denouement served as a temporary check to this kind of speculation, but its lessons are so far forgotten that others are before the public. One of them issues a glowing circular, which is more remarkable for what is left out than for what is stated. After certain statements which are equally true of all the high piny woods region of Florida, a rather shadowy and ambiguous description is given of the "phenomenal city" where the advertised lots are situated. We are told that "over 5,000 people own property there. Miles of streets are already cleared. Splendid hotel, depot, sawmill, and colleges already built." Would any one gather from this that the "city" consists of a railroad depot, a land-office, four cheap shanties, and a portable sawmill, scattered amid pine trees on a sandy plain? Yet that is all there is of it. Florida is a pretty large State, and contains a great many acres of land which can be bought at low prices. No one needs to fear that "land will be exceedingly high in the near future," as is asserted in one of these circulars. It is not so cheap, though, that any company can afford to spend money to advertise that it will give away town lots or farms for nothing, unless it expects to make it up in some covert way. The only safe path leads away from such advertisers. Florida offers desirable homes to thousands of industrious families, but not in the way proposed by these gift enterprises. Nothing—the yellow fever not excepted—has injured the good name and progress of the State so much as these so-called Free Homestead Companies.

Pointers.

Search the Scriptures all you can for your own sake, but do not spend time in that pursuit with the expectation of getting a parlor organ, shot-gun, top puggy or sewing machine as a reward. The fellows who advertise such a scheme are but a step lower than a professedly religious paper that will publish the advertisement.

The reverend gentleman who had to give up his labors with a small congregation on account of catarrh, went to London and grew worse, and from there went to Arabia, where in Mecca, "the holy city," he met a native physician, who gave him a catarrh remedy, is a self-evident liar. If the fanatical Arabs should catch him or any other Yankee in the "holy city" they would end his sufferings from catarrh in a very different manner from that described.

D. C. Webb of Morris Co., Kansas, and Auguste Dupuis of Canada, forward circulars which they received from "green goods" men. The latter is in very bad French, but otherwise similar to the usual style adopted by the swindling scoundrels. The fact that these fellows still keep the field affords melancholy evidence that there are men who take their bait, instead of promptly exposing them, as our correspondents have done.

Animal Ailments.

Obscure Lameness in a Horse.—S. G. W., Birmingham, Ala., has a horse that has been slightly lame for two years, and says, "I can see nothing to show that he should be lame, except that the pastern joint of that leg seems to be a little larger than the other." It is difficult to make a positive diagnosis from the description, but we would advise the use of actual cautery and fly blisters to the part, with six or eight weeks' rest in a large box stall, or better still, a long run at pasture.

"Pot-gut."—G. W. Ross, Westmoreland Co., Pa., writes us: "I have an Indian pony troubled with what is commonly known as pot-gut," and desires to know what treatment can be adopted to diminish it. This pony, like many that are not properly fed, probably has to eat a large quantity of bulky food before getting sufficient nourishment. We would advise feeding only small quantities of hay, say four to six pounds at night and three quarts of good oats three times a day. Water should be given only in small quantities, and often.

Slobbering.—C. Bell, Genesee Co., Mich., writes to know what can be done to cure a horse of slobbering. From the description given, the case seems to be an aggravated one, and in all probability due to some irritation in the mouth, such as sharp-pointed or ulcerated teeth; again, some foreign body may have become wedged in between the teeth, giving rise to irritation; we can only advise that some veterinarian examine the mouth carefully for a cause, and when found remove it. There is no reason why an otherwise well horse should slobber, unless the cause be local.

Goitre in Lambs.—R. M. Bell, Cook Co., Ill., would like to know the cause of and cure for goitre in lambs. We wish we could help him. There are probably several causes. A French authority attributes it to the "humidity of their habitations," or to wet yards and damp basements. Anything which weakens the constitutional vigor of the sheep, such as in-and-in-breeding, excessive grain-feeding followed by short rations, stagnant and impure water, want of exercise, ill-ventilated barns, and especially close confinement in damp Winter or Spring quarters, when so much bedding has to be used as to force the sheep to lie on fermenting manure, is likely to be followed sooner or later by goitre. There is no certain cure for goitre, Iodine is usually recommended, but the expense and trouble are more than the sheep are worth Occasionally liberal feeding will enable a lamb to outgrown the goitre.

Protection for Sore Shoulders.—Cotton cloth well smeared with pure tallow, wrapped around the collar, is undoubtedly an excellent preventive of sore shoulders, but to oil the collar inside often enough to keep it soft is equally so, and is much more quickly and easily done. Be careful at the same time to keep the collar perfectly clear of any hard substance sticking to it, and see that the collar fits nicely to the shoulders, and that it does so without being either too tight or too loose. When the horse is brought into the stable after being worked, if the least sweaty the collar should not be removed till his hair is well dried under it. Some persons when their horses are kept regularly at work, let them wear their collars all the time,—by night as well as by day. They say this keeps their skin tough, and it is not nearly so likely to become galled.

Catarrhal Mammitis.—G. J. R., Adair Co., Ky., writes: "I have two valuable Alderney cows with diseased udders. The attack comes on at intervals; suddenly one-quarter of the udder becomes swollen and hard, and very little milk can be drawn. The part is sore to the touch; in twenty-four hours, the milk comes freely but with it lumps and strings like curd. * * * * * Do veterinary surgeons name the disease, and tell how to treat it?" The disease is known as catarrhal mammitis, and full articles on the subject have been published repeatedly in the AMERICAN AGRICULTURIST. The same subscriber further asks whether there is any treatment for barren heifers. Such cattle should be kept in medium condition, and when in heat taken from the rest of the herd, and served by a large, young bull and kept quiet for a few days.

Foul Foot.—When a cow or other cloven-footed animal is seen to lift its foot, stretch it out and shake it and endeavor to lick it, the foot should be examined without delay. When the cows stand at times in manure, this lodges between the hoofs, or some other matter may get there; and either acts as an irritant to the tenderer skin there. Vesicular eruption may then occur, with inflammation, and the skin peels off, with the result of suppuration and often ulceration. This disease is called "foot or hoof-ail," and is apt to cause trouble if neglected. In time the inflammation penetrates the foot, and the hoof may be loosened or drop off. The disease is more apt to occur with cattle that are out of condition and whose blood is thin and poor. Attention should be given at once. The feet should be washed and carefully cleaned between the hoofs. The sores should be dressed with some stimulating oleaginous mixture to excite healing and protect the raw surfaces from the air. A very good ointment is made of four parts of clean lard, one part each of Venice turpentine and spirits of turpentine, and one-half part of acetate of copper (verdigris). This may be spread upon a rag or lint, and put between the hoofs, which are then bound with a soft bandage passed between the hoofs and around them, and fastened above.

Farmers' Boys Have the Best Chance.

DR. G. G. GROFF.

There died not long ago in Chester county, Pennsylvania, a farmer who owned between five hundred and six hundred acres of land, all well improved and stocked. This man had raised and educated twelve children. Yet, when a lad, he was penniless. While serving an apprenticeship, by overwork, he made and saved one thousand dollars before he was twenty-one years of age. This money he invested in "exhausted" land, which at once he began to improve and soon had in excellent condition. It has often occurred to me that no class of men can so well rear and educate their children as can farmers. They may not make so much money as city men do, but more of the real comforts of life certainly belong to the country than to the city. Many of the most successful business men in our cities went thither from the country. Our colleges have many more boys from the farms than from the towns. The boy reared on the farm stands a better chance than the one reared in the town. I recently saw a poor colored lad who in one year saved one hundred and seventy dollars while laboring on a farm. He intends to save for ten years and then buy a farm. He can do it.

English Prizes for American Shropshires.

The Shropshire Sheep Breeders' Association and Flock Book Society of England has, through its secretaries, Messrs. Lythall, Mansell & Walters, offered the following cups for Shropshire sheep, viz.: A silver cup at the International show, Buffalo, N. Y., for the best Shropshire ram and five of his get, the latter to be under two years old, bred and owned by the exhibitor. Also a silver cup at the Indiana State fair for the best Shropshire ram of any age, four ewes one year old or over, and two ewe lambs.

The Grasses the South Might Grow.

Grass, hay, the breeding of horses, mules, cattle sheep, swine and goats, and domestic fowls, should be the foundation of Southern agriculture, and the superstructure should be live stock in the greatest abundance, including all farm animals; also dairying, grass-made butter and hay for Northern markets; pork, lard, beef, fine cattle, horses and mules for home and Northern markets; early vegetables and fruits for Northern and Southern markets; dried, canned and preserved fruits, jellies, preserves, honey and horticultural products, including cut flowers for Northern and Southern cities. Large plantations, negro labor and great staple crops, can never make Southern agriculture a success. The white farmer, stock-breeder, truck-farmer and horticulturist must save the South and make it prosperous. The negro is adapted only to gang labor and large plantations, under the eye of an experienced overseer.

In 1879 the Southern States had about 19,135,000 head of grass- and hay-eating animals (horses, mules, milch cows, oxen and other cattle), 9,054,000 sheep and 21,138,000 swine. (All Southern swine should be of the best grass-eating breeds.) All these States, in 1879, made but 2,437,000 tons of hay. The States south of Missouri, Tennessee and North Carolina, most of them bordering on the Gulf of Mexico had, in 1879, about 12,000,000 horses, mules, asses and cattle, 4,500,000 sheep and 11,000,000 swine. These States made, in 1879, but 396,000 tons of hay, sixty-eight pounds to each grass-eating animal, not including sheep, goats and hogs. Yet while the North has comparatively few varieties of grasses, the South has many, some of them excellent winter grasses; these last, with rust-proof oats and winter rye, will keep stock in fine order all winter with no hay whatever. Howard, in his excellent book on Southern grasses, said that he had eaten beef, of three-years-old steers, that had never eaten a pound of hay, and were kept fat all winter on winter grasses alone. We have Kentucky blue grass, Texas blue grass, orchard grass, white and red clover, fescue grass, Virginia lyme grass and at least half a dozen other grasses; most of them grow all winter and some of them all winter, except in the month of January. Lespedeza is a semi-winter grass. It is killed by November frosts, but I have seen the seeds germinate and growth commenced late in January in latitude 31°30′ It always starts in February in Mississippi, and if bitten by hard frosts it springs up again after a few days of warm weather. Bermuda is one of the best grasses in the South for hay and grazing. It may be cut three times a year. Thomas Affleck, the noted horticulturist, made four tons of Bermuda hay to the acre in Mississippi. Mr. St. Julien made in South Carolina at the rate of eleven tons of Bermuda hay to the acre on a small patch fertilized scientifically as an experiment to see the possibilities of Bermuda. Crab grass may be cut two or three times on rich land, and makes hay equal in value, ton for ton, to Northern hay sold in the South. A ton of this hay may be made to the acre on land that made a good crop of corn the same year. It is self-seeding and grows from May until November frosts. Hay may be made in the South during June, July, August, September and October; the best is usually made in July and August. Lespedeza, or Japan clover, on rich land, makes fine hay and large crops. Red clover does well in the South on lands containing plenty of lime. Pea vine hay is about equal to Northern red clover. It may be made a ton or more to the acre among corn. The seed is sown in June, a bushel to the acre, in corn planted early in March. Sweet potato vines make good hay; cattle are as fond of them, green or cured, as they are of pea vines which are equal to red clover. Sedge grass, if cut in August, makes a much better hay than Northern "meadow hay," natural hay growing in wet meadows in the Northern States. Buffalo and Mesquite grasses cover large areas in Texas, and are highly esteemed. Virginia lime grass may be cut twice in the winter and spring, and will continue to grow until June. Johnson grass, or Means grass, may be cut three times in one season, and on rich land will yield four tons of good hay to the acre. In Mobile this hay usually sells for about fifteen dollars a ton. Cotton planters cry down Johnson grass and Bermuda, and, indeed, crab grass and all other grasses, because they injure the cotton crop. Cattle, mules, horses, sheep and swine are less liable to diseases in the South than in the North when as well fed and cared for as Northern farm animals.

The possibilities of the Southern States in the production of grasses, forage crops, including hay, sorghum, fodder corn, Kaffir corn, pearl millet, teosinte, sweet potato vines, cow peas, lucern, lespedeza, cow clover, rust proof oats, German millet and many other plants and grasses, with rich soil, intensive farming and high cultivation, seem to be almost unlimited.

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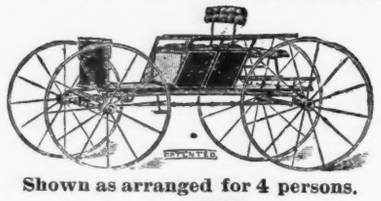

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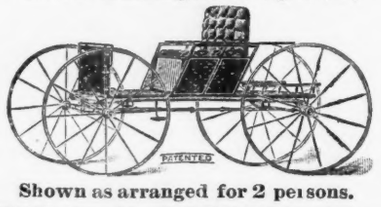

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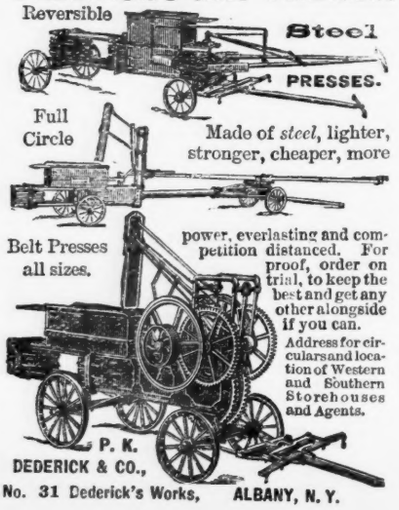
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FASHIONS, Or, WHAT TO WEAR AND HOW TO MAKE IT. Artistic illustrations are always found in this department, with descriptions of the newest and latest Styles and Novelties in Ladies' and Children's Dresses, Hats, Bonnets and other garments, with directions that enable one to dress well and economically. The very finest illustrations are used to make everything plain, so that ladies can make their own dresses, trim their own Hats and Bonnets, and dress themselves and their children with neatness and taste, in the prevailing styles. Each copy of the Ladies Home Companion is worth more than the entire year's subscription to every young lady and married woman, for this department alone.

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FLOWERS. The Floral Department is a treasure to the amateur florist and all who love flowers. Questions and reports of successes or failures and everything of interest to those who raise flowers, whether for pleasure or profit, receive timely and careful attention, with grand illustrations, like all other portions of this delightful periodical.

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TO HELP THE FARMERS.

What the Stations Are Doing for Practical Agriculture.

The value of roots and stubble as manure is generally underrated. Last year the Storrs Experiment Station conducted a series of observations upon the subject (Bulletin 3). Sections of soil containing roots were taken at various depths, from six inches to forty-two inches. It was found that under average conditions from three-fourths to nine-tenths of the roots were found in the upper six inches. Some of the results afford the following interesting comparisons, of the weight per acre of roots and stubble and the comparison thereof:

	Weight roots and stubble.	Nitrogen.	Phos. Acid.	Potash.	Value.
	Lbs. per acre.				
Cow peas, to depth of 3½ feet .	1,097	14.5	2.8	6.4	43.22
Timothy and Redtop, 3 " ..	8,223	90.1	25.2	55.8	21.59
Buckwheat, to depth of 1 foot ..	524	4.4	1.3	3.8	1.12
Wheat roots only	658	6.4	1.5	2.6	1.43
Clover roots only	1,335	35.5	10.0	15.0	8.09
Rich stubble manure contains in	2,000	10.0	10.0	8.0	3.08

Other observations confirm the fact that clover roots and stubble contain large percentages of all three of the most valuable ingredients of plant-food. All the facts seem to imply that clover and other leguminous plants have the greatest manurial value; timothy and other grasses stand next, and the grain crops leave the least amounts of plant-food in roots and stubble. The value of clover on grain lands is thus partially accounted for.

HOW THEY ARE EQUIPPED FOR BUSINESS.

ARKANSAS—The station is a department of the Industrial University at Fayetteville, the professors of agriculture(director), chemistry and biology working in similar lines in the station, the other workers being solely employed by the station. The board of control consists of president, director and a committee of the trustees. The station has an equipment from the University worth $15,000, a special building costing $3,000, and has several sub-stations, the plant at which cost $1,500 to $2,500 with $800 to $1,000 annual expenses. These are in localities representing the different conditions of a great State. The Legislature gives $4,000, and the total receipts are $22,000 a year. Work has been done mostly in horticulture, diseases of live stock, grasses and forage plants, and with cotton and other field crops to ascertain best varieties for largest yields.

COLORADO'S station at Fort Collins and the college are run by the Board of Agriculture, the actual management being vested in a council of the president (director) and professors of agriculture, botany and horticulture, veterinary and irrigation (receiving twenty-five per cent of their salaries from the station), each of whom have assistants working wholly for the station and paid by it. Sub-stations are established—Southern, in San Louis valley, elevation 7,500 feet; Southeastern, Arkansas valley, elevation 4,200 feet; Western, Grand River valley, Delta or Mesa, near Grand Junction, elevation 4,000 feet; Central or "Divide," at El Paso, elevation 8,000 feet. Land and sometimes more was donated for the sub-stations; it cost $800 a year each to run them. The central station has the college farm and outfit and a special building costing $5,000, of which $2,000 was paid by the college. The matters upon which farmers want immediate light are receiving first attention, purely scientific research being secondary. Many plats of wheat and corn to test soils and varieties, and secure stock for distributing seeds among would-be farmer-experimenters; twenty-six varieties of sorghum, sugar beets, flax, forage plants and grasses, noxious weeds and insects, tobacco culture, especially for the Arkansas valley, testing large and small fruits, biological and veterinary investigation, are among the lines of work. Also a great variety of questions upon many wholly new questions in irrigation and kindred subjects which may require five or ten years or more to definitely answer.

CONNECTICUT—The State Experiment Station at New Haven has for its board of control the governor, director and appointees by the governor and Senate (2), State Agricultural Society, State Board of Agriculture and by the trustees of Wesleyan University and Sheffield Scientific School. It has four chemists and a mycologist. It gets half the Hatch fund, $7,500, from fertilizer and analysis fees, $3,000, and $8,000 from the State annually. The Hatch money has been mainly devoted to the mycologist's work and outfit, the onion smut receiving chief attention. Fertilizer and other chemical work, field experiments on farms in various sections, and grasses and forage plants are the leading lines. The other half of the Hatch fund by legislative act goes to an experiment station at the Storrs Agricultural School at Mansfield, Prof. W. O. Atwater, director, run by a committee of trustees. It has a station building and laboratory, and free use of the Wesleyan University laboratory. Field experiments among farmers is a prominent feature, the farmers being paid $30 to $50 for doing the work, besides having the fertilizers and keeping the crop; the object being not only to secure accurate information under the station's direction but to educate men to talk intelligently to their brother farmers. The work at Mansfield has farther been in root growth, tillage as concerning soil moisture, testing new fruits, sources of nitrogen of plants, bacteria in milk and other dairy matters.

GEORGIA'S $15,000, by the Governor's direction, was given for a station at the University of Georgia at Athens, but the Legislature has just decreed that the fund shall be vested in a board of control independent of the University and consisting of the Commissioner of Agriculture, Chancellor of the University, and one from each Congressional district appointed by the Governor. This Board is directed to procure an experiment farm in Central Georgia by gift or at a cost of $5,000 which is appropriated, but it may or may not utilize the chemical outfit at Athens. This action is the farmers' way of showing extreme dissatisfaction with the Agricultural College of the University. At Athens, however, with the funds received, a building has been repaired for station headquarters, and a fine equipment secured for all branches of investigation. An improved dairy house and silos have been built, and special work started with cotton, field pea and sweet potatoes.

IOWA—Iowa's station has a director, chemist, botanist, entomologist and minor assistants employed and paid wholly by it, while the agricultural college, professors of agriculture, horticulture and veterinary science occupy similar positions in the station, and draw one-third of their salary from it. The station has eighty acres of land, a number of which have been laid off into plats for testing all kinds of fruits, a specialty being made of the Russian, with a view to get by cross-fertilization perfectly hardy varieties. Many field crops are also experimentally grown, including grasses and forage plants. A building containing the chemical, botanical and entomological libraries, with the propagating house, has been constructed, costing $3,750, with $1,900 more for heat and light, $2,500 for apparatus, and $1,000 for books. Dairy subjects are to receive particular study.

INDIANA—Purdue University at Lafayette pays the traveling expenses and salaries of the board of control of the station. All the workers devote their whole time to station and are paid wholly by it except the agriculturist and horticulturist, who do some teaching and are paid for it by the University. Having been experimenting for twelve years, the buildings, entire farm, all equipments, etc., were turned over to the new station without charge, and a building put up specially for the chemical, botanical and dairying laboratories of the station at a cost (with furnishings) of $7,500, the University paying the excess over the $3,000 allowed in the Hatch act for buildings. The Legislature was asked first, to help complete the station's equipment; second, to aid the University. Ten acres are in horticultural plats; soil and many other analyses; bacteria and fungus physiology, two greenhouses being expected for this work; an extensive system of lysimeters to investigate soil drainage; many field experiments with numerous duplicate plats to check up errors. There are three series of sub-stations conducted with outside help without expense to the central station—six for testing soils and fertilizers, ten for testing fruits and four for studying the Hessian fly. It is doubted if this voluntary work is sufficiently reliable.

ILLINOIS—The State University at Champaign has given the station the use of $50,000 worth of property, though the books may not show it. The station has what land it wants, but no more. The upper stories of the college chemical building contain the station offices, laboratories, etc. A building 30x56 feet, with cellar and attic, has been put up for the agricultural and horticultural departments of the station. The management lies in a board appointed by the University trustees—two of their members, the President, the professors of agriculture, horticulture and chemistry, and one each from the State Agricultural, Horticultural and Dairymen's Association. The board meets quarterly, plans work and refers it to an executive committee, but large latitude is given the heads of departments, who are held responsible. The three college professors as heads of station departments get one-third of their pay from the station, but all other station workers are wholly paid by it. The professors each have station assistants. The State entomologist is a separate office supported by $7,500 from the State. The work has been largely in field experiments with corn and other grains, horticulture and live stock matters.

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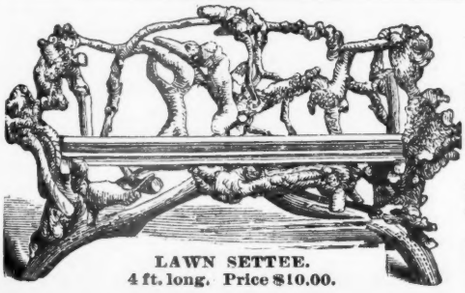

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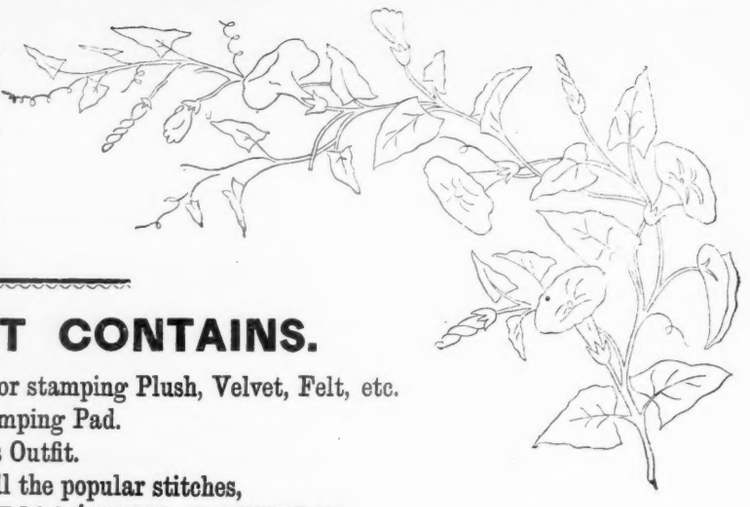

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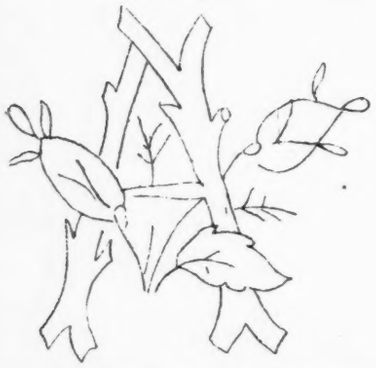

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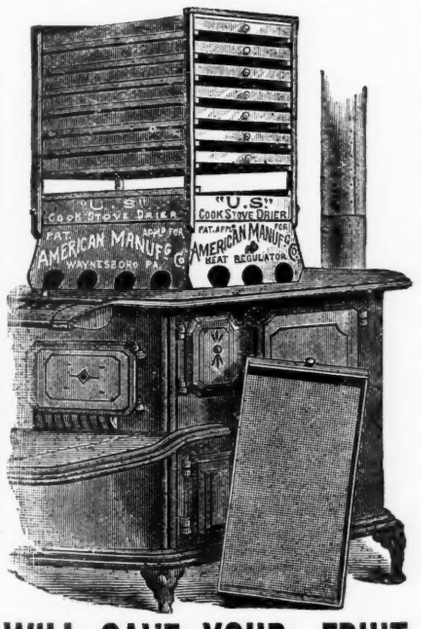

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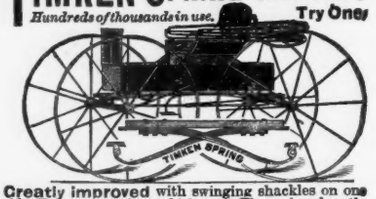

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